HUMBOLDT-UNIVERSITÄT ZU BERLIN

Being Prepared
Disaster Risk Management in the Eastern Visayas, Philippines

An SLE study prepared for the GTZ.

The SLE-Team:
Erik Engel (team leader), Nicole Piepenbrink, Jascha Scheele,
Conrad Dorer, Jeremy Ferguson, Wera Leujak

Berlin, 20.12.2007

SLE

Disclaimer:

The findings, interpretations and conclusions in this report are those of the authors. They do not necessarily represent the views of the German Technical Cooperation (GTZ).

Schriftenreihe des SLE (Seminar für Ländliche Entwicklung)

SLE Publication Series (Centre for Advanced Training in Rural Development)

Herausgeber / Editor	SLE	Seminar für Ländliche Entwicklung (Centre for Advanced Training in Rural Development) Humboldt Universität zu Berlin
	Sitz:	Hessische Straße 1-2, Unter den Linden 6, 10099 Berlin, Germany
	E-Mail:	sabine.doerr@agrar.hu-berlin.de
	Internet:	www.agrar.hu-berlin.de/sle www.berlinerseminar.de
Redaktion / Managing Editor	Gabriele Beckmann SLE - Seminar für Ländliche Entwicklung	
Druck / Printing	PPMDW Präsentation Plus Märkische Druck- und Werbeproduktionsgesellschaft mbH Landsberger Str. 263 12623 Berlin (Mahlsdorf)	
Vertrieb / Distributors	Seminar für Ländliche Entwicklung Hessische Straße 1-2, Unter den Linden 6, 10115 Berlin 10099 Berlin	
1. Auflage 2008 / 1st edition 2008	1-300	
Copyright 2008 by	SLE - Seminar für Ländliche Entwicklung (Centre for Advanced Training in Rural Development)	
ISSN	1433-4585	
ISBN	3-936602-35-2	
Titelbild / Cover photo	Flood in the municipality of Palo Municipality of Palo	

Foreword

The Centre for Advanced Training in Rural Development (Seminar für Ländliche Entwicklung, SLE) at the Humboldt University in Berlin has trained young professionals in the field of German and international development cooperation for more than forty years.

Consulting projects conducted on behalf of German and international cooperation organisations form part of the one-year postgraduate course. In multidisciplinary teams, young professionals carry out studies on innovative future-oriented topics, and act as consultants. Including diverse local actors in the process is of great importance here. The outputs of this "applied research" are an immediate contribution to the solving of development problems in rural areas.

Throughout the years, SLE has carried out over a hundred consulting projects in more than sixty countries, and regularly published the results in this series.

In 2007, SLE teams completed studies in Mozambique, Burkina Faso, Kenya/Tanzania and the Philippines, all of which dealt with topics relevant to the most recent discussions in international cooperation.

The present six-month study was commissioned by and conducted in cooperation with the Sector project Disaster Risk Management in Development Cooperation (*GTZ DRM Sector Project*), Eschborn and the GTZ Environment and Rural Development Project (EnRD), Manila, both commissioned by The Federal Ministry for Economic Cooperation and Development (BMZ). The research is part of GTZ DRM interventions in Region VIII of the Philippines, components funded originally by BMZ and now by the Disaster Management Programme of the European Union (DIPECHO), executed by GTZ.

The consultancy team was composed of Nicole Piepenbrink (landscape planner), Wera Leujak (marine biologist), Jascha Scheele (political scientist), Conrad Dorer (biochemist), Jeremy Ferguson (geographer and political scientist) – all participants of the 45th course of SLE - and Erik Engel (social anthropologist and geographer) as team leader.

Prof. Dr. Otto Kauffmann
Dean
Agricultural Horticultural Faculty

Carola Jacobi-Sambou
Director
Centre for Advanced Training in Rural Development

Acknowledgements

The Seminar für Ländliche Entwicklung (SLE) project on Disaster Risk Management (DRM) has been implemented through the financial support of the Gesellschaft für Technische Zusammenarbeit (GTZ) and the German Federal Ministry for Economic Cooperation and Development (BMZ), and with the assistance of many people in the Philippines and Germany. We are grateful to all of them for their valuable input.

First and foremost, we would like to express our appreciation to all the members of the communities where our research was conducted. Without the patience and support of all the inhabitants of Binahaan and Catarman Watersheds, this project could not have been such a success. We hope that our work will also be of benefit to them.

We would like to express our special thanks to Tonette Gonzales, Nicanor Arjon and Yolando De Guzman, our Filipino team members who accompanied us and our project throughout most of our stay in the Philippines. Their input, translations and analysis were indispensable to us, as was their kindness and friendship.

Our thanks go to the GTZ regional office in Tacloban, in particular to the consultant on disaster risk management Allen Mollen, who gave us vital insights into how DRM is currently carried out in the Philippines, and to Olaf Neussner, consultant on capacity development. They helped us in every way possible despite their formidable workload. We are also indebted to the staff of the head office in Manila, who supported us logistically and who engaged us in critical discussions regarding our project.

The project was conceptualized by Dr. Michael Siebert (Head of the Sector Project for Disaster Risk Management at GTZ Headquarters) and Peter Keller (former head of the GTZ Environment and Rural Development Programme in the Philippines) and who invited the SLE Team to work in the Philippines. We are most grateful for their initiative and valuable support.

A number of representatives of national and international agencies have been of great assistance in supplying information and in discussing the overall situation. They offered material and documentation and provided information about their own organizations. Our thanks specifically go to the representatives of the Local Government Units in the Provinces of Leyte, Northern Samar and Albay, the National Economic Development Authority (NEDA), the Department of the Interior and Local Government (DILG), the Office of Civil Defence (OCD), the Department of Environment and Natural Resources (DENR), the National Irrigation Authority (NIA), the Environmental Management Bureau (EMB), the Philippine Institute of

Volcanology and Seismology (PHIVOLCS), the Philippine Atmospheric, Geophysical and Astonomical Services Administration (PAGASA), the Philippine Red Cross, the Regional Environmental Information System (REIS), the Philippine Crop Insurance Company (PCIC), the Comprehensive Development Plan (CDP), the Asian Development Bank (ADB), the United Nations Development Programme (UNDP), the World Health Organization (WHO), the Food and Agriculture Organization of the United Nations (FAO), Oxfam, the World Bank, AusAid and the Japanese International Cooperation Agency (JICA).

Sven Hansen and Sonja Grigat helped us to devise the research in Berlin by sharing their experiences of working in the Philippines.

We are grateful to Iris Paulus, Gabriele Beckmann and Dr. Alexander Proehl from the Centre for Advanced Training in Rural Development (SLE), for their advice, professional support and critical input during the conceptual and development phases of the project. In addition, we would like to express our appreciation to all other SLE staff for their cooperation.

Executive Summary

The **Philippines** is one of the most hazard-prone countries in the world and is regularly affected by typhoons, floods, landslides, earthquakes, tsunamis and volcanic eruptions. **Samar** and **Leyte**, the two major islands of **Region VIII** (Eastern Visayas), were the focus area of this study. Situated within the so-called "typhoon belt" they are recurrently ravaged by winds, storm surges and continuous heavy rain leading to floods in a relevant part of the productive and inhabited land area.

Two **watersheds** on these islands, the **Binahaan** watershed (Leyte) and the **Catarman** watershed (Northern Samar) constituted the **research area**. Both comprise mainly rural municipalities and *barangays* (villages) and are heavily reliant on copra (coconut) production, rice and, to a lesser degree, vegetables and fruit trees.

Disaster Risk Management (DRM) in the Philippines was the focus of the research. The definition of a disaster is when the effects of a **hazard** exceed the capacities of a community or society to cope through its own means. Disasters are understood as a correlation of **hazards**, i.e. extreme (natural) events combined with the **vulnerability** of a society and the inadequacy of its **capacities to cope** with the event.

In the light of recent tragedies and economic losses induced by disasters, the focus of international cooperation is shifting from relief to **disaster prevention and mitigation**. The Government of the Philippines is following this concept and a climate for change in the institutional disaster management system is apparent.

Chapter 2 describes the context of the study. The German Development Cooperation (**GTZ**) in the Philippines supports DRM in Region VIII through its Environment and Rural Development Programme (EnRD). The DRM component is financed by the Federal Ministry for Economic Cooperation and Development (**BMZ**) and the Disaster Management Programme of the European Union (**DIPECHO**). The research was commissioned by the GTZ-DRM Sector project operating worldwide and the GTZ-EnRD programme to **contribute to the ongoing processes on optimizing disaster management** in the Philippines.

In line with the emphasis on disaster prevention and mitigation and in the context of changing national guidelines, the objective of the research team was to assess **DRM integration into local development planning** and to recommend mechanisms for its **mainstreaming**. In a subsequent step **needs for capacity development** at all levels of self-governance were evaluated to strengthen and optimize the existing system.

An assessment of **national structures for DRM** and the interventions and **approaches of international organizations** in Region VIII provided one base for the analysis and for best practice examples. A second base was an analysis of the **perception of risk** of the population, their livelihood assets in a vulnerability context and their mechanisms for coping with disasters. Here the **sustainable livelihoods approach** was chosen as the **analytical framework** in order to place livelihoods at the centre of the analysis and to consider disasters in relation to their impacts on environmental, physical, human, political and financial assets. **Participatory methods** of the Participatory Rural Appraisal (PRA) toolbox were used to gather information at village, municipal and provincial levels. Semi-structured interviews and workshops were conducted at the regional as well as at the national level and with representatives of international organizations. The diversity of sources of information was to ensure the reflection of the **views of different levels** of the community.

Chapter 3 presents **the institutional framework** to allow a better understanding of existing mechanisms and the ongoing debate in the Philippines: The current disaster management system of the Philippines relies on so-called **disaster coordination councils** (DCCs) which were institutionalized **at all administrative levels** in 1978 by Presidential Decree (PD) 1566. These DCCs are responsible for strengthening local self-reliance in the case of disasters by organizing response and preparedness structures; and for drafting a preparedness plan and implementing it in the case of a disaster. At provincial, municipal and *barangay* level a **Calamity Fund** exists which amounts to **5 percent** of the **local budget** earmarked for disaster response and, since 2003, also for disaster preparedness.

The administrative framework **is inadequate** at all local government levels. If at all, DCCs at *barangay* and municipal level collaborate to manage the effects of disasters. The **Calamity Fund is insufficient** to cope with even minimal disaster effects and the development budget is too low to plan for long-term disaster prevention structures. The provisions of PD 1566 perpetuate a top-down system difficult to operate effectively and giving little incentive for local initiative. The approach remains **response-oriented** and **dependent on the next higher level**. The motivation of local chief executives, or initiatives launched by higher administrative levels play a key role in determining the nature of DRM structures at local level.

The need for **reform** is acknowledged, and a **New Philippine Disaster Management Bill** is awaiting ratification. The objectives of this Bill are to optimize self-reliance at the local level, to promote a **shift towards disaster prevention** and mitigation, and to regulate the integration of DRM into development planning. The main difference with respect to the existing legislation is the **institutionalization of permanent disaster management structures** at all administrative levels. Despite

the fact that all actors involved recognize the need to overhaul the existing system and that the main thrusts of the reform are not disputed, the reform itself has been in the pipeline since the year 2000.

Permanent disaster risk management structures would contribute to **mainstreaming DRM into planning, in order** to better **monitor** the implementation of the plans as well as the use of the funds earmarked for disaster-related issues. Permanent DRM units could play an important role in **capacitating departments** at the same administrative level and the next lower Local Government Unit (LGU) to better perform their disaster-related tasks. They would also ensure that communities are prepared for the potential risk and that response structures and communication lines are operational, rapid and efficient.

The province of Albay and, more recently, the province of Northern Samar has institutionalized a permanent disaster management unit at provincial level. Both provide encouraging evidence that **permanent structures** can, in the long run, **help to better prepare communities**. In the first years of their existence, the disaster management units should be coached to ensure that their performance responds to the needs and reasons for their creation.

International organizations could **lobby for a reform** along the lines of the new disaster management bill in order to optimize the system. In the meantime, they endeavour to **strengthen** existing **local capacities** to better perform at their respective levels of intervention. While the main trigger for becoming involved in DRM in Region VIII was the landslide in Guinsaugon (Southern Leyte, 2006) **most agencies aim at a long-term engagement** following a disaster in order to establish effective prevention and preparedness structures. For these agencies, DRM constitutes a cross-cutting issue that is increasingly integrated in all of their programmes.

The most relevant initiative in DRM in the Philippines is currently the **READY project**, bringing together different national agencies working on DRM and international donors, namely the United Nations Development Programme (UNDP) and AusAID. READY is coordinated by the Office of Civil Defence (OCD) and has established a multi-agency working group **to strengthen community awareness on DRM**.

Chapter 4 explores the *barangay* and municipal levels in order to understand the **livelihood situation**, the **perception of risk** by local people and the **existing vulnerability** related to disasters. The results of this assessment provide a basis for: proposing interventions that reduce people's vulnerability to disasters; identifying disaster prevention measures that should be integrated into the planning process (Chapter 4) and drawing up recommendations for capacity development adapted to the situation on the ground (Chapter 6). The livelihood asset pentagon from the

Sustainable Livelihood Approach was used to provide an overview of livelihood characteristics that make people vulnerable to disasters.

Disasters are not necessarily devastating events that are reported in the world media: in the area covered by this research, **regularly occurring, small-scale floods**, generally associated with typhoons, destroying crops but hardly affecting infrastructure, represent the main threat to the development of the region.

The population is well aware of the flood risk they are exposed to and can predict with reasonable accuracy when they will be inundated, by observing the water level and its turbidity. They cannot envisage any measures that they themselves could take to better cope with the effects on their livelihoods. In a general problem ranking **disasters** were **not** identified **as a priority**. The main problems encountered by the interviewed population are related to livelihood such as health, education, employment, and security. Casualties and damage to infrastructure are not the main concerns during and following disasters in the area covered by this research. It is the **impact on livelihoods, namely the destruction of crops, which poses the major problem**.

Addressing vulnerability is a time-consuming and complex process necessitating a multi-dimensional approach and encountering many structural problems. A DRM approach focussing only on technical interventions and training for disaster preparedness is insufficient. Livelihood problems must be addressed and the research team suggests further study of: **submergence tolerant rice** varieties; **improved seed management**; **diversification of crops** and **sources of income** (alternative livelihoods); **crop insurance**, and **comprehensive watershed management**, including environmental and technical interventions.

Chapter 5 analyses the **integration of risk reduction measures in development planning,** currently one of the most important activities in DRM with the focus shifting to long-term prevention and mitigation strategies including the reduction of vulnerability as described above. This integration process generally includes two aspects:

Firstly, DRM can be regarded as a **cross-cutting issue** that should be taken into account in all planning sectors (e.g. environment, health, infrastructure, etc.). The aim is to **plan with a DRM perception** in hazard-prone areas in order to: (i) **avoid** any building activities that do not immediately reduce the disaster risk in high-risk areas (spatial planning aspect); (ii) **ensure** that projects or structures do not exacerbate the disaster risk, and (iii) ensure that structures are able to **withstand** disasters.

Secondly, certain DRM measures can be regarded as **stand-alone issues** in planning, since they do not have a function that extends beyond the DRM aspect.

These comprise **specific prevention measures** such as dams, rip-raps or slope stabilization in landslide-prone areas and measures that prepare for the risk that remains even if prevention measures are in place.

The **Local Development Code** provides for planning offices at all levels. However, decentralization has occurred predominantly in administration and to a lesser extent in local policies. The process is **incomplete** in terms of fiscal decentralization, with only limited fiscal autonomy at lower administrative levels, making municipalities and *barangays* **highly dependent on the Internal Revenue Allotment** (IRA). Planning in the Philippines is complex and is characterized by numerous sector-specific programmes. The **Joint Memorandum Circular 2007** is a long overdue attempt to improve this process by **harmonizing** the different **plans** and reducing their number.

The **planning** situation at **higher levels** (national, regional, provincial) can be defined as **comprehensive and well established**. However, it **requires enforcement** capacities, particularly with respect to ensuring that development guidelines are adopted at local levels. Planning at **municipal level** lacks a holistic approach and focuses more on annual planning. The municipal planning and development council **has insufficient staff and resources** to fulfil its duties. **At *barangay* level** the planning situation is **inadequate**. This is partly due to insufficient finances to fund development projects and this is combined with **limited planning skills** and capacities. **Coordination** between different administrative levels is often not optimal. **Top-down planning** is predominant, as lower levels often fail to present their respective plans in time for consideration. Planning is further hampered by a **high turnover of staff**, due to elections occurring every three years. **Planning lacks continuity and reliability**, especially with regard to the implementation of long-term programmes. Political issues also lead to a **prioritization of short-term projects**, and successful programme implementation is often impeded by widespread corruption.

Planning documents at all administrative levels were analysed with regard to the inclusion of DRM measures. The extent of **DRM integration decreases at the lower** and more decentralized **administrative levels**. A lack of adequate hazard and risk maps that constitute the basis for integrating DRM aspects into planning was apparent at all levels.

At **provincial level**, DRM aspects are considered within the Provincial Physical Framework Plan, with particular attention attributed to flood-related aspects.

The integration of DRM in the **municipal planning process** is dependent on the initiatives of the Local Chief Executive (LCE) and the Municipal Planning and Development Officer. Land Use Plans acknowledge disaster-related aspects, but do not translate these into comprehensive prevention strategies. Existing Disaster

Preparedness Plans were comprehensive, but neglected disaster prevention measures.

At ***barangay*** **level,** planning activities are only dealt with under the Annual Investment Plan (AIP) and DRM measures hardly feature in these plans. Furthermore, no Disaster Preparedness Plans exist.

In order to optimize DRM in planning it should be integrated (i) in Land Use Plans and (ii) in Development Plans.

Land Use Plans should contain **land-use classifications** based on detailed risk maps and should identify **high-risk areas,** that are exempt from development, and medium-risk areas where all projects require '**Hazard Compliance Certificates'**. These should ensure that the disaster risk is taken into account when planning and implementing the project. The **starting point** for DRM integration into the planning process is the availability of **reliable risk maps**. So far, only hazard maps for selected areas of Region VIII have been produced; the collection of **vulnerability data** is still in its infancy and the process appears to be lengthy, expensive and demands increased expertise.

Development Plans should **mainstream DRM in all sectors** (social, economic, environment, etc.). Action plans listing prevention, preparedness and response measures will serve as the basis for integrating DRM activities into the respective planning sectors.

The gap between the planning stage and actual project implementation will not narrow until LGUs have at their disposal additional **finances for DRM-related measures**. Therefore, in the short term it is suggested to support LGUs in **generating additional local revenues** and in **tapping external funding sources**, as well as permitting the **Calamity Fund to accumulate** and ensuring that this fund will also be used for disaster preparedness. In the long term it is recommended to **adjust the Calamity Fund to the risk level** that the LGU is facing and to oblige the national level to release additional finances for DRM. This would, however, necessitate changes in legislation. The same applies to the creation of permanent actors to improve proactive DRM. The fact remains that planning with a DRM perspective will only enhance disaster risk management if the **implementation of these plans** can be **assured. Integrating DRM** in the planning process could at the same time **promote** more **strategic thinking** through linkages between levels, sectors and departments.

Chapter 6 examines existing and needed **capacities.** One reason for insufficient bottom-up planning and inadequate implementation of plans, is a **lack of resources and skills** at the lower levels of governance. So far, decentralization has not been accompanied by an adequate capacity-building process allowing each level to take

over its full responsibilities. Few *barangays* have acquired the necessary capacities for self governance and **capacity-building at all levels should be a priority** if LGUs are to become self-reliant and more resilient to natural hazards.

In the context of DRM, **capacities are the sum of physical resources and skills, formal and informal social systems, as well as attitudes and belief systems** that empower individuals and social units to cope with extreme events. They provide the foundations for development and can be built upon when planning interventions to reduce vulnerability.

Barangays are regularly **confronted with hazards** affecting their livelihoods. They have reasonably functioning response systems but difficulties with long-term coping. Their organizational capacities for disaster preparedness and mitigation as well as for mid- term planning, are limited and need to be strengthened.

Municipalities have **greater funds**, more **professional employees** and a broader vision on issues and plans. Yet their **capacities for vertical and horizontal** communication appear moderate, resulting in insufficiently comprehensive plans, and *ad hoc* management. The current capacities should be used to help **develop holistic and binding plans** allowing for better coordination with the provinces and improved **training capacities** to disseminate knowledge to *barangays*, thus creating a sounder base for municipal plans and activities.

Provincial administrations see their role in **capacitating and supporting** lower level LGUs. They define major thrusts and coordinate and consolidate the framework for action of their LGUs. Furthermore, provinces have **leeway** regarding the **institutional framework** for DRM. Northern Samar has institutionalized a permanent Provincial Disaster Management Unit whilst Leyte perseveres with the classical arrangement where DRM is managed solely by the disaster coordination council. **Provinces need to be supported in order to build capacities at the local levels**. In addition, the holistic DRM concept and how it can be translated into concrete preventive measures needs to be propagated.

A challenge to these interventions is the prevailing attitude favouring **top-down** and ***ad hoc* decision making**. Decades of response-oriented disaster management and institutions providing relief goods have created a “dole out” mentality and **demotivated people** to maintain self-help mechanisms. The high turnover of staff linked to **a poor transfer of knowledge, information and responsibilities,** results in a need for **regular refresher training**.

A number of **structural changes** in the **administrative framework** have been proposed, leading to the installation of **permanent disaster management structures** or core staff to establish continuity and to facilitate coordination and capacity development at all levels. A coherent but flexible capacity development

strategy based on **capacity development modules** has been designed, addressing the needs for capacity development, without neglecting the differences from level to level: a **basic module** leading to more **awareness** and better **disaster preparedness** based on detailed **risk assessment** and an **advanced module** aiming at **improved bottom-up planning** capacities taking disaster risk into consideration. The modules could be offered as **training of trainers** to capacitate the recipients to disseminate and apply the module.

The modules are integrated into a **three-phase strategy** that allows for prompt interventions in areas in need of immediate attention, without neglecting those medium- and long-term measures that assure sustainability. **External capacity development agencies** would primarily assume the **role of facilitators** rather than that of principal trainers. Existing capacities in different disciplines are used and further strengthened to ensure ownership and sustainability. In the **long-term**, external support would gradually diminish however the training structures and modules would remain and improve with experience. As a consequence, the planning process would **reflect the needs at the lower levels,** including requests for technical training, as proposals from the lower levels are integrated into the planning of the next higher level.

The following recommendations summarize the analysis undertaken:

- Disaster Risk Management without livelihood development is insufficient. In the research area this implies income diversification and the quest for flood tolerant varieties.
- DRM needs to be institutionalized through the creation of permanent structures and focal persons that support the whole DRM cycle.
- International organizations should lobby with decision-makers to support the proposed New Disaster Management Bill for the Philippines.
- In order to mainstream DRM into spatial and development plans, accurate risk maps reflecting hazards and vulnerability need to be drafted. These maps should identify high risk areas, areas for limited use and core areas for development.
- Hazard Compliance Certificates should be required for activities in areas of limited use. High risk areas should be free of construction and economic activities.
- A calamity fund adjusted to the risks faced by communities should allocate the budget for disaster response and preparedness. The fund should be accumulated and not be used for bonuses.

- Preventive activities should be considered in the sector planning at all levels. National contributions could serve as incentives to use a “disaster lens” when planning projects.
- Capacity development should improve the response system by raising awareness, and clarifying responsibilities and communication lines. In a subsequent step it should support long-term, strategic and bottom-up planning with DRM featuring as a factor in the plans.

List of abbreviations

ABC	Television station in the Philippines
ACDV	Accredited Community Disaster Volunteers
ADB	Asian Development Bank
ADRMM	Advanced Disaster Risk Management Module
ADRMM+	Advanced Disaster Risk Management Module Plus
AIP	Annual Investment Plan
BAO	*Barangay* Action Officer
BAT	*Barangay* Action Team
BDC	*Barangay* Development Council
BDCC	*Barangay* Disaster Coordinating Council
BDP	*Barangay* Development Plan
BDRMM	Basic Disaster Risk Management Module
BDRMM+	Basic Disaster Risk Management Module Plus
BHW	*Barangay* health worker
BMZ	German Federal Ministry for Economic Cooperation and Development
CA	Congressional Allocation
CARE	Cooperative for Assistance and Relief Everywhere
CBEWS	Community-based and automatic early warning systems
CBFM	Community-based Forest Management
CBFRM	Community-based Fishery Resource Management
CBMS	community-based monitoring system
CBN	Television station in the Philippines
CBO	community-based organization
CD	capacity development
CDP	Comprehensive Development Plan
CF	Calamity Fund
CLUP	Comprehensive Land Use Plan
COA	Commission on Audit
CRED	Centre for Research on the Epidemiology of Disasters

CSCAND	Collective Strengthening of Community Awareness for Natural Disasters
CVA	Capacities and Vulnerabilities Analysis
DART	Disaster Assistance Response Team
DBM	Department of Budget and Management
DC	Development Council
DCC	Disaster Coordination Council
DED	*Deutscher Entwicklungsdienst* (German Development Service)
DEdu	Department of Education
DENR	Department of Environment and Natural Resources
DFID	The United Kingdom Department for International Development
DILG	Department of the Interior and Local Government
DIPECHO	European Commission's Humanitarian Aid Disaster Preparedness Programme
DKKV	German Committee for Disaster Risk Management
DMC	Disaster Management Council
DMO	Disaster Management Office
DOF	Department of Finance
DOST	Department of Science and Technology
DP	Development Plan
DPF	Disaster Prevention Fund
DPP	Disaster Preparedness Plan
DPPP	Disaster Prevention and Preparedness Plan
DPWH	Department of Public Works and Highways
DRM	Disaster Risk Management
DRR	Disaster Risk Reduction
DSWDO	Department of Social and Welfare Development
DYSM	Radio station in Region VIII
ECC	Environmental Compliance Certificate
ECP	Environmentally Critical Project
EIA	Environmental Impact Assessment
ELA	Executive Legislative Agenda
EMB	Environmental Management Bureau
EMI	Earthquakes and Megacities Initiative

EnRD	Environment and Rural Development Programme
EWS	Early-Warning System
FAO	Food and Agriculture Organization of the United Nations
FGD	focus group discussion
GAD	Gender and Development
GIS	geographic information system
GSIS	Government Service Insurance System
GTZ	*Gesellschaft für Technische Zusammenarbeit* (German Agency for Technical Cooperation)
HCC	Hazard Compliance Certificate
HDI	Human Development Index
HLURB	Housing and Land Use Regulatory Board
IASC	Inter-Agency Standing Committee
IEC	Information, education and communication
IEE	Initial Environmental Examination
IIRR	International Institute for Risk Reduction
IP	Investment Plan
IPCC	Intergovernmental Panel on Climate Change
IRA	Internal Revenue Allotment (Philippines)
IRRI	International Rice Research Institute
JICA	Japanese International Cooperation Agency
JMC	Joint Memorandum Circular
LCE	local chief executive
LDC	Local Development Code
LGPMS	Local Government Performance and Monitoring System
LGU	local government unit
LMWD	Leyte Metropolitan Water District
LUBBDP	Land Use Based *Barangay* Development Planning
MAG	Municipal Action Group
MAO	Municipal Agricultural Office
MAO	municipal action officer
MBO	Municipal Budgeting Office
MDC	Municipal Development Council
MDCC	Municipal Disaster Coordinating Council

MDG	Millennium Development Goal
MDPP	Municipal Disaster Preparedness Plan
MEO	Municipal Engineering Office
MGB	Mining and Geoscience Bureau
MGLOO	Municipal Local Government Operational Officer
MGSO	Municipal General Service Office
MHO	Municipal Health Worker
MPDO	Municipal Planning and Development Office
MPDOs	Municipal Planning and Development Officers
MSWDO	Municipal Social Welfare and Development Office
MTDP	Medium-Term Development Plan
MTPDP	Medium-term Philippine Development Plan
MTPIP	Medium-Term Public Investment Program (Philippines)
NAAD	Network of Areas for Agricultural Development
NAMRIA	National Mapping and Resource Information Authority
NDCC	National Disaster Coordinating Council
NDMC	National Disaster Management Council
NEDA	National Economic Development Authority
NFA	National Food Authority
NGO	non-governmental organization
NIA	National Irrigation Authority
NLA	National Line Agency
NPAA	Network for Protected Agricultural Areas
NPFP	National Physical Framework Plan
NRO	NEDA Regional Office
OCD	Office of Civil Defence
OFDA	Office of U.S. Foreign Disaster Assistance
PAGASA	Philippine Atmospheric, Geophysical and Astronomical Services Administration
PAO	Provincial Agricultural Office
PCA	Provincial Chief Administrator
PCIC	Philippine Crop Insurance Company
PD	Presidential Decree
PDC	Provincial Development Council

PDCC	Provincial Disaster Coordinating Council
PDMO	Provincial Disaster Management Office (r)
PDMU	Provincial Disaster Management Unit
PDP	Provincial Development Plan
PENRO	Provincial Environment and Natural Resources Office
PEO	Provincial Engineering Office
PFP	Physical Framework Plan
PhP	Philippine Peso
PhilRice	Philippine Rice Research Institute
PHIVOLCS	Philippine Institute of Volcanology and Seismology
PIA	Philippine Information Agency
PLUC	Provincial Land Use Committee
PLUMO	Provincial Land Use Management Office
PMT	Provincial Management Team
PNP	Philippine National Police
PNRC	Philippine National Red Cross
PO	People's Organizations
POPCOM	Commission on Population
POPDEV	Population and Development
PPAs	Programmes/Projects/Activities
PPBIM	Planning, Programming, Budgeting, Implementation, and Monitoring System
PPDO	Provincial Planning and Development Office
PPDOs	Provincial Planning and Development Officers
PPFP	Provincial Physical Framework Plan
PRA	Participatory Rural Appraisal
PSWDO	Provincial Social Welfare and Development Office
RA	Republic Act
RDC	Regional Development Council
RDCC	Regional Disaster Coordinating Council
RDIP	Regional Development Investment Programme
RDP	Regional Development Plan
RDPP	Regional Disaster Preparedness Plan
REIS	Regional Environmental Information System

RLUC	Regional Land Use Committee
RPFP	Regional Physical Framework Plan
RRA/PRA	Rapid/Participatory Rural Appraisal
RSSS	Regional Social Security Systems
SLA	Sustainable Livelihood Approach
SLE	*Seminar für Ländliche Entwicklung* (Centre for Advanced Training in Rural Development)
SNAP	Strategic National Action Plan
SWOT	strength, weakness, opportunity and threat analysis (SWOT analysis)
TWG	technical working group
UDEM	Urban Development and Environmental Management
UNDP	United Nations Development Programme
UN-ISDR	United Nations - International Strategy for Disaster Reduction
UNU-EHS	United Nations University - Institute for Environment and Human Security
VA	vulnerability analysis
VCA	vulnerability and capacity analysis
WHO	World Health Organization
WS	watershed

List of tables

List of text boxes

List of figures

List of photos

Table of Contents

Table of Contents

1. Introduction

1.1 The Philippines – a country at risk

Situated on the eastern rim of the Asiatic Mediterranean – the warm and shallow tropical waters between the Pacific and Indian Oceans, Australia, and the Asian mainland – the Philippines are one of the world's largest archipelagos comprising over 7,100 islands. The total land area is about 300,000 km^2, over 90 percent of which is contained within the eleven largest islands that form the three major island groups of Luzon in the north, Mindanao in the south and the Visayas in the centre.

Figure 1: Physical Map of the Philippines
Source: wikipedia.org

Samar and Leyte, the two main islands of the Eastern Visayas, were the focus area of this study (see Figure 1).

This chapter introduces the Philippines as a disaster-prone country (1.1) before discussing the concept (1.2) and definition of the terminology of disaster risk management (1.3). Major trends in international cooperation concerning disaster risk management are briefly illustrated in the last section of the chapter to complete the underlying framework within which this study on Disaster Risk Management was conducted.

1.2 Hazards in the Philippines

Its physical-geographical characteristics make the Philippines one of the most hazard-prone countries in the world. It is regularly affected by typhoons, floods, landslides, earthquakes, tsunamis and volcanic eruptions. According to data from the Belgium-based Centre for Research on the Epidemiology of Disasters (CRED), the Philippines experiences more natural hazards than any other country (BANKOFF 2003: 31). Table 1 provides an overview of the most disastrous natural events recorded in the Philippines[1].

Table 1: The Philippines - Natural Disaster Country Profile
Adapted after: EM−DAT: The OFDA/CRED International Disaster Database − www.em−dat.net (2007)

Disaster type	Year	Killed	Affected	Econ. damage in million US$
Flood	1972	n.a.	2,770,647	220
Storm	1973	n.a.	3,400,024	n.a.
Earthquake	1976	6,000	n.a.	n.a.
Storm	1990	n.a.	6,159,869	388.5
Earthquake	1990	2,412	n.a.	695
Storm	1991	5,956	6,547,592	435
Volcano*	1991	800	2,100,000	500
Drought	1998	n.a.	2,600,000	n.a.
Storm	1998	n.a.	n.a.	2,400
Storm	2006	n.a.	3,842,406	n.a.
Storm	2006	1,399	2,562,517	644.6

* cf Bankoff 2003; n.a. = not available

Geophysical Hazards

Located on a seismic belt, the so-called “Circum-Pacific Ring of Fire”, at the intersection of the Eurasian, Pacific and Philippine Sea tectonic plates, the Philippine archipelago lies in an area of extreme seismic and volcanic activity. The country’s length is bisected by the Philippine Fault Zone with many subsidiary faults, one strand of which runs under the country’s populous capital city Manila. According to the Philippine Institute of Volcanology and Seismology (PHIVOLCS), the country experiences as many as five **earthquakes** daily; significantly damaging quakes occurring on average every 18 months. **Tsunamis** are another threat,

[1] Table 1 is compiled and adapted from EM-DAT’s three “Top 10 Natural Disasters” tables for “number killed”, “number affected” and “economic damage”.

Southern Mindanao being particularly vulnerable. In 1976 a seaquake-triggered tidal wave caused some 4,000 deaths and left 12,000 homeless.

There are 220 **volcanoes** in the Philippines, 22 of which are classified as active. The eruption of Mount Pinatubo in 1991 – the second largest volcanic eruption during the last century – provides an example of how catastrophic such an event can be. Although PHIVOLCS had forecast the event and 200,000 people were evacuated, 800 still lost their lives and an estimated US$500 million of damage was recorded. The after effects of this event are still evident today since people settling in the area face the continuous threat of **lahars**, flows of volcanic ash triggered by heavy rains, that have already buried numerous communities as well as rice paddies and sugarcane fields.

Landslides are similar to lahars, and are another type of hazard that occurs in the more mountainous parts of the country. They can be triggered by earthquakes and/or torrential rainfalls and can wipe out whole settlements.

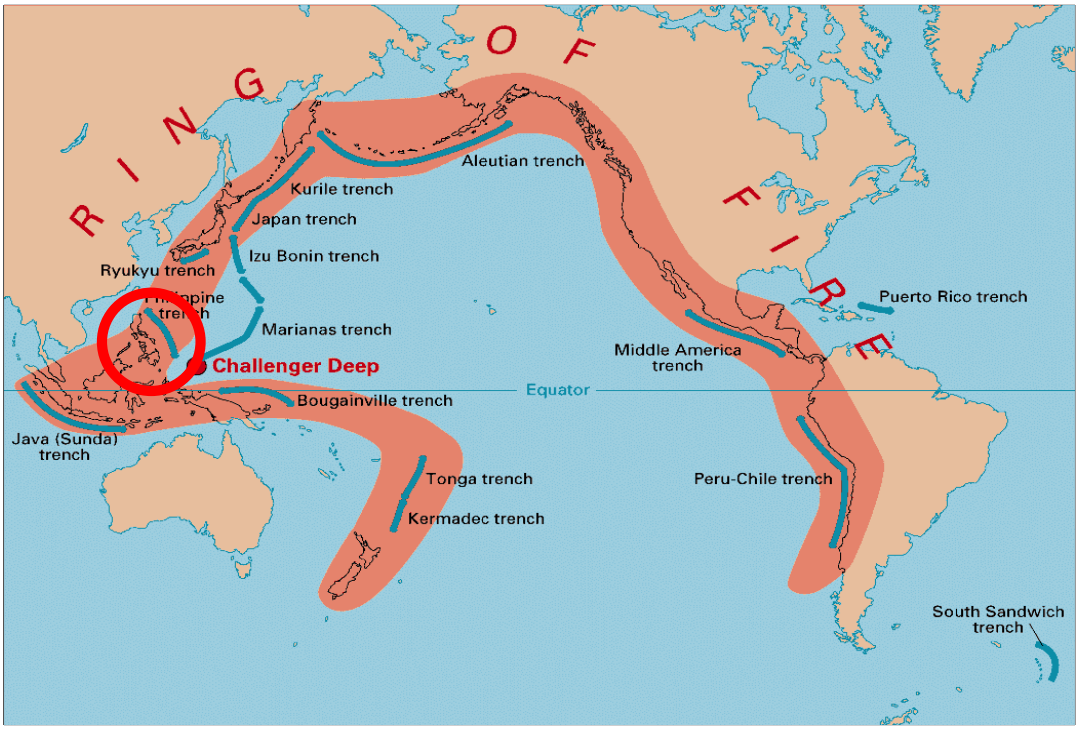


Figure 2: The Pacific "Ring of Fire"
Source: GTZ EnRD programme

Hydro-meteorological Hazards

The humid tropical marine climate of the Philippines is characterized by an average annual temperature of 26.5°C and a mean precipitation rate above 2,000 mm/year. Although there is a dry season in some parts of the country, increasingly linked to occasional **droughts**, it is tropical cyclones and floods that account for the majority of

disaster losses, not only from weather-related hazards but from all types of natural hazards (see Table 1).

Tropical cyclones (referred to as **typhoons** in the Asian context) can reach velocities of up to 300 kph in gusts, giving them a tremendous destructive potential. The country is affected by more than 20 typhoons each year. Although, on average, only five turn out to be destructive, typhoons and associated **storm surges** have killed about 29,000 people in the 20th century and caused extensive damage.

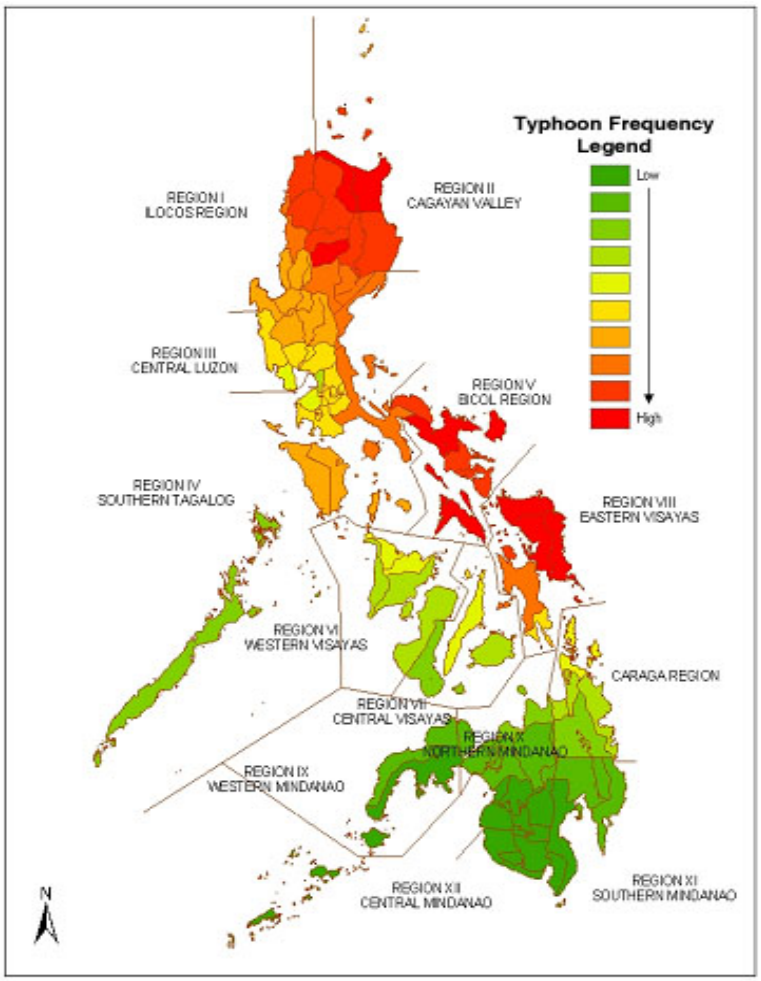


Figure 3: Map showing the Philippine's Exposure to Typhoons
Source: GTZ EnRD programme

Typhoons are usually accompanied by **heavy rains** which are responsible for nearly half the average annual rainfall in the archipelago. They not only trigger lahar flows, landslides and flash floods, but are also the principal cause of the severe and recurrent **flooding** of lowland areas (BANKOFF 2003: 33). Floods are also generated by the heavy monsoon rains and thunderstorms, associated with the inter-tropical convergence zone, leading to an overflowing of rivers and, in coastal areas, by storm surges.

In the research area in the Eastern Visayas, floods were the most frequent hazard triggering disasters, with many small- and medium-scale events – often unnoticed at the international and national level – accounting for a major share of the losses in people's individual livelihoods.

1.3 Natural Hazards and Vulnerability

Extreme natural phenomena such as storms, floods, droughts, volcanic eruptions, landslides or earthquakes can constitute threats, or hazards, to the human environment, but they are not *per se* a **disaster**. It is when they strike an exposed and vulnerable population that is insufficiently prepared and unable to cope with the adverse consequences that a disaster arises, resulting in loss of human life and livelihoods, injuries and displacements, social and economic disruption, as well as environmental damage.

Statistics reveal that over the past decades there has been a significant increase both in the number of disasters recorded worldwide (see Figure 4) and in disaster-related economic losses (see Figure 5).

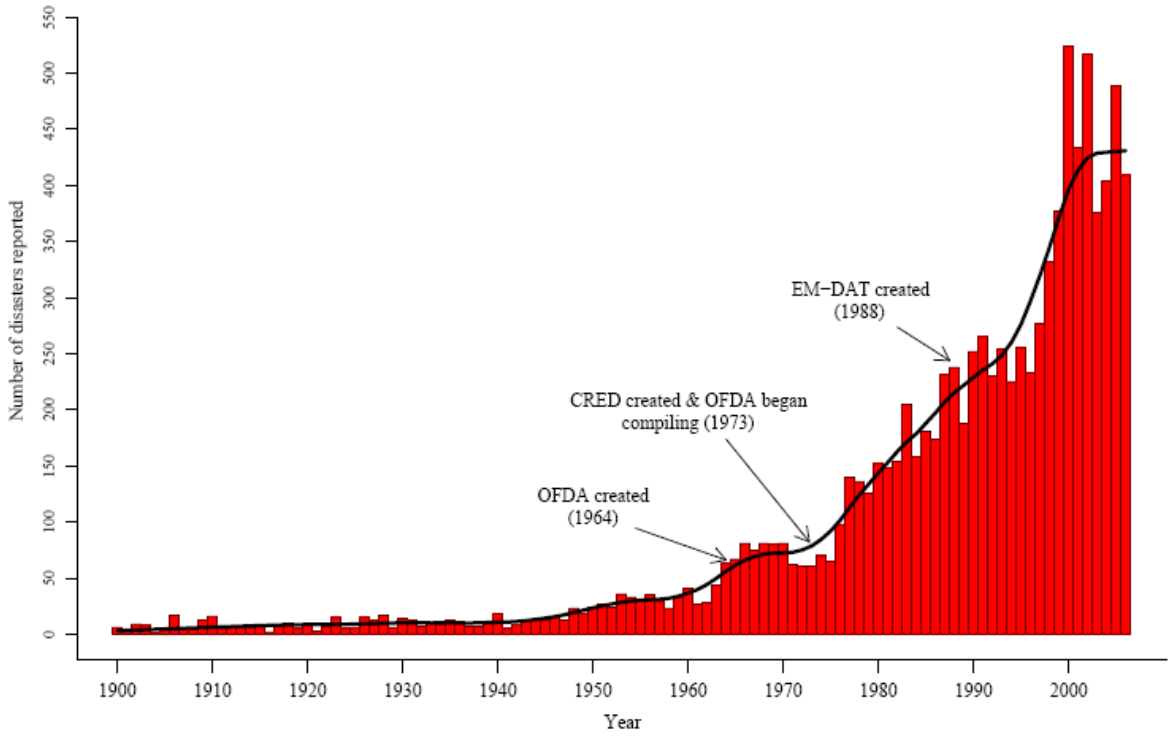


Figure 4: Number of Natural Disasters Reported Worldwide
Source: EM−DAT: The OFDA/CRED International Disaster Database − www.em−dat.net (2007)

Despite the fact that the increase in frequency and impact of disasters documented is to some extent also due to improved data availability[2], the main reason for this upsurge is not directly related to an increase in natural hazard events (although the effects of climate change clearly imply more severe, more frequent and less predictable hazardous hydro-meteorological events). The principal reasons for this increase in disaster risk are to be found in the specific socio-cultural, political-institutional, and economic circumstances of people's lives, denoted by the broad concept of vulnerability.

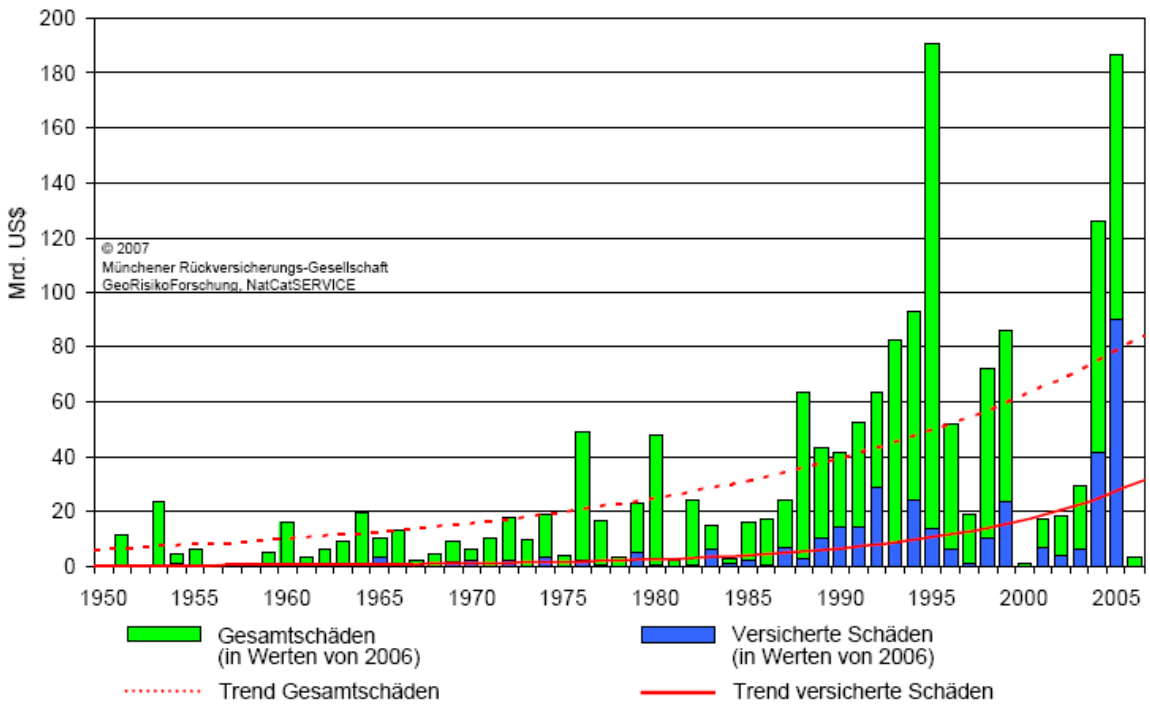


Figure 5: Large-scale Natural Disasters 1950-2006 – Total and Insured Damage
Source: Munich Re NatCatSERVICE 2007

[2] Modern telecommunication and the internet as well as a growing interest in the research and documentation of disasters have made the reporting and recording of events much easier and comprehensive. Note that the criteria of what is considered a 'disaster' (e.g. minimum number of people killed/affected) varies from database to database.

Vulnerability in the context of disasters can be defined as:

> "…the inadequate means or ability to protect oneself against the adverse impacts of external events on the one hand and on the other to recover quickly from the effects of the natural event." (GTZ 2002: 18)

There are a number of interconnected and dynamic global pressures augmenting vulnerability and thus affecting the trend of rising disaster risk, not only, but predominantly, in poor countries (BLAIKIE *et al* 1994: 32, cf. ISDR 2007).[3]

Poverty: Poverty and vulnerability are strongly correlated and reinforce each other. Poorer people are generally both more exposed and more susceptible to hazards, suffer a greater relative loss of assets, and have a lower capacity to cope and recover.

Population growth and urbanization: With increasing population density, concentrated particularly in urban areas, the poor are forced to settle in hazard-prone locations and unsafe conditions. City growth doubles every 15 years and informal settlements every 7 years (UNU-EHS 2007: 25). Higher population densities and more complex physical infrastructures result in a greater potential for large-scale disaster impacts.

Geography: Many of the poor countries are situated in the (sub) tropics and are particularly exposed to climate-related hazards such as tropical cyclones, floods, or droughts. Tropical and sub-tropical ecosystems (rain forests, coral reefs) are fragile systems with low resilience to impacts. Or the countries lie along geologically active fault lines and are therefore prone to earthquakes, volcanic eruptions, or tsunamis.

Climate change: Due to man-made global warming, the frequency and severity of extreme weather-related events is likely to increase (Intergovernmental Panel on Climate Change). Sea level rise threatens 70 percent of the global population residing in coastal areas. In addition, the economic costs deriving from the effects of climate change are expected to be considerable (between 5 and 20 percent of global GDP).
(http://environment.guardian.co.uk/climatechange/story/0,,1935616,00.html).

Environmental degradation: Deforestation, inadequate land use and soil erosion, caused by growing pressure on resources, reduce the capacity of the natural environment to sustain and protect a growing population, and thereby aggravate their

[3] These "dynamic pressures" are part of a "pressure and release model" that attempts to explain disasters by tracing a progression that connects the impact of a hazard on people through a series of levels of social factors that generate vulnerability. (BLAIKIE *et al* 1994: 23); see Annex 3

vulnerability.[4] In the long run, these factors lead to resource depletion and increased poverty. Yet, the poor and marginalized often have no alternatives to procure their livelihoods than, for example, to cut down forest for subsistence farmland, for building material, and for firewood, even on unsuitable steep slopes.

Disaster risk designates the extent of the damage and loss a natural event is expected to cause. It is determined as the product of the factors hazard and vulnerability over capacity. Hazard includes the probability and the magnitude of the anticipated natural event; vulnerability comprises a number of political-institutional, economic, socio-cultural and geographical factors. Although vulnerabilities and capacities are sometimes seen as the two ends of the same spectrum, capacities can also be considered separately when other factors are incorporated in this category. Capacity might, for instance, include institutional membership, group cohesion, or literacy, whereas vulnerability could include poverty, quality of the house, or illiteracy[5] (CANNON *et al* 2003:6).

$$\text{Disaster Risk} = \frac{\text{Hazard x Vulnerability}}{\text{Capacity}}$$

[4] Deforestation causes soil erosion and reduces the natural water retention capacity of soils in the case of heavy rains, thereby causing a faster and larger runoff.

[5] The use of the concept of capacities emerged in response to the supposed negativity of the term vulnerability: it was suggested that to speak of people as being vulnerable was to treat them as passive victims and ignore the many capacities that make them competent to resist hazards. And yet logically there is no reason that the term vulnerability cannot include capacities as its scalar 'opposite' (CANNON *et al*. 2003:6).

1.4 Vulnerability and Disaster Risk in the Philippines

The Philippines is prone to numerous hazards (see section 1.1) and has a growing and vulnerable population. Economic growth and the government's efforts towards creating employment are hardly keeping pace with the increase in the population .[6] Although the incidence of poverty has declined, the actual total number of poor people has substantially increased: there were over four million more poor people in 2000 than in 1985 (ADB 2005: XII). The ADB study identifies seven distinct causes of poverty and issues that exacerbate poverty or hinder poverty reduction efforts in the

Table 2: Fact Box – The Philippines

Source: CIA World Factbook 2007

	National	**Region VIII**
Total land area	300,000 km^2	23,230 km^2
Total population	91,077,287	4.2 billion (2007)
Rural population Urban population	48%	
	52%	
Population density	303.5 inhab./km^2	180.8 inhab./km^2 (2007)
Pop. growth rate	1.764%	1.51% (2000)
Median age	22.7 years	n.a.
Religions	80.9% Catholic	93.3% Catholic
	5% Muslim	< 0.1% Muslim
	14.1% other/none	6.6% other/none
GDP	US$116.9 billion	US$2.7 billion (2006)
GDP (PPP)	US$449.8 billion	
GDP per capita (PPP)	US$5,000	US$2,323 (2006)
GDP growth rate	5.4%	4.9% (2006)
Agriculture	14.1% of GDP	33.3% (2006)
	36% of labour force	
Industry	31.6% of GDP	30.9% (2006)
	15% of labour force	
Services	54.2% of GNP	35.8% (2006)
	49% of labour force	
External debt	US$62.44 billion	-
HDI	0.763 (84^{th}/177)	0.55 (2000)
Literacy rate	92.6%	90.1% (2003)
Forest cover 1934	57.3%	n.a.
Forest cover 1990	20.7%	52.2% (2006)

[6] According to a study undertaken by the Asian Development Bank (ADB), the poverty incidence using the international definition of US$1 per day (purchasing power parity) has dropped from 18.3 percent in 1990 to 11.1 percent in 2003. However, in 2003, the proportion of the population living on less than US$2 per day was much higher, at 44.1 percent.

Philippines, among these are weak macroeconomic management; employment issues including unemployment, underemployment and low wages; high population growth; an under-performing agriculture sector and an unfinished land reform agenda; governance issues including corruption and a weak state; and conflict and security issues, particularly in Mindanao (ibid: 2). All these issues are also relevant to vulnerability.

Another contributing factor is environmental degradation characterized, among other things, by a dramatic decline in forest cover and destruction of coral reefs and mangrove forests[7].

1.5 Disaster Risk Management in International Development Cooperation

Disasters disrupt or impair development and, at the same time, a low level of development increases the chances of them occurring. Devastations caused by disasters constitute considerable disruptions or setbacks in their development achievements and for their economy, drawing governments' scarce financial resources away from investments in education, health, or other sectors, crucial for long-term sustainable development, and directing these reserves to short-term emergency aid, rehabilitation and reconstruction measures.

While the main trigger for becoming involved in DRM is still calamities, most agencies aim at a long-term engagement following the disaster in order to establish effective prevention and preparedness structures. It is estimated, however, that 98 percent of investments go towards emergency relief and reconstruction and only 2 percent to prevention measures, although experts agree that for each Euro invested in prevention about five to seven Euros worth of damage could be avoided (SLE 2006: 4, BENSON & TWIGG 2004: 7). This demonstrates the high potential for preventive measures in countries and communities at risk.

The importance of disaster management has come to be widely acknowledged in international development cooperation. Although the concepts of different donor

[7] Decline in forest cover through large-scale logging and the conversion of forest land into agricultural areas. Illegal logging is still a common source of income. Further, expanding settlements, the increasing number of people dependent on agriculture, and shifting cultivation are maintaining the pressure on natural resources above sustainable levels (SLE 2001: 6). The destruction of mangroves and coral reefs has not only led to a decline in local fishery production but also to the loss of natural protection of coastal communities from storm surges and beach erosion.

agencies vary slightly in their terminology and structure[8], they have in common a shift of focus from a more technical view of the hazard side to the vulnerability side of the disaster risk equation, with the emphasis on risk management/risk reduction **before** a disaster rather than on the response side of disaster management (see Figure 6).

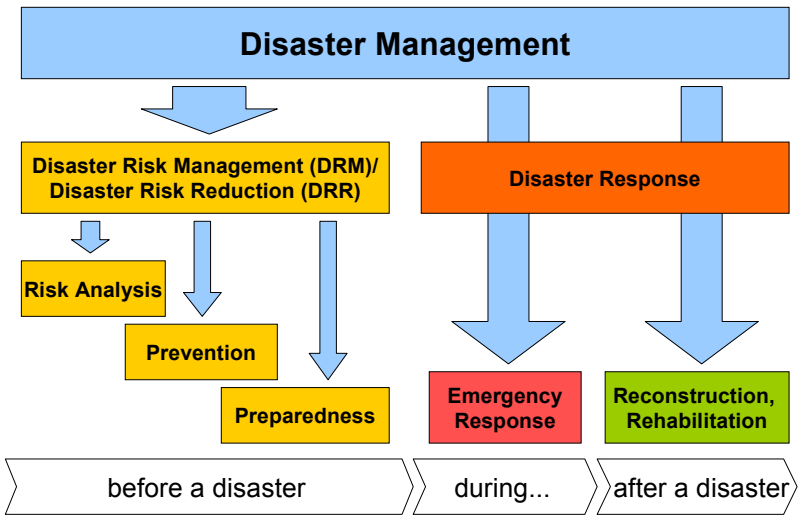


Figure 6: The Disaster Management Concept
Source: adapted from GTZ 2004: 18

Disaster risk management (DRM) is a broad and comprehensive concept. It consists of the pre-disaster actions and instruments of risk analysis, mitigation/prevention and preparedness:

- **Risk analysis** comprises both a detailed hazard and a vulnerability analysis (including an analysis of coping capacities) and constitutes the basis for further planning and interventions.
- **Prevention and mitigation** encompass medium- to long-term activities, including political, legal, administrative and infrastructure measures related to disaster risk, and influencing the lifestyle and behaviour of the population with the aim of reducing their vulnerability.
- **Preparedness** to avoid or minimize the death toll or other losses and damage in the event of a disaster. Activities related to preparedness comprise early-warning systems, the establishment of a deployment and coordination apparatus, the drawing up of emergency plans, and training measures and drills.
- With growing losses caused by disasters on the one hand, and the commitment to sustainable development and, later, the Millennium Development Goals on the

[8] For example, GTZ uses the term 'disaster risk management' (rather than 'disaster risk reduction'), and defines risk analysis as a separate instrument and has included mitigation in prevention. Definitions in glossary, Annex 1.

other, there was an upsurge of international effort and political interest in disaster risk management.[9]

The European Union has been financing DRM programmes since 1994 through the "European Commission's humanitarian aid disaster preparedness programme" (DIPECHO) in cooperation with United Nations and other agencies such as the Red Cross or GTZ. The World Bank has created the "Global Facility for Disaster Reduction and Recovery" as a financing mechanism for DRM measures. In Germany, too, DRM is high on the development agenda. The German Federal Ministry for Economic Cooperation and Development (BMZ) promotes the integration of DRM as a cross-cutting issue into relevant sectors of development cooperation (BMZ 2004: 23); the GTZ-DRM Sector Project for Disaster Risk Management in Development Cooperation (see Text Box 1) being its executing organ for coordination.

However, there is still a wide gap between the proclaimed political agenda and the practical consequences for disaster risk management. It is simply easier to mobilize and legitimize expenditures after a disaster when the images of devastation and human agony are vivid in people's minds. This makes the promotion of disaster risk management a challenge in developing and developed countries alike.

Text Box 1: German Development Cooperation and Disaster Risk Management

In Germany, DRM is high on the development agenda. The German Government is committed to implementing the Hyogo Framework for Action. The Ministry for Foreign Affairs, being the lead Ministry for Humanitarian Aid, also supports DRM projects; and the German Committee for Disaster Risk Management (DKKV) addresses issues on national level in Germany such as the link between science and practice, the transfer of technology and knowledge, and sensitization.

In order to promote DRM as a long term development issue, the German Federal Ministry for Economic Cooperation and Development (BMZ), promotes the integration of DRM as a cross-cutting issue into relevant sectors of development cooperation (BMZ 2004: 23) e.g. in Southern Leyte and Binahaan, Philippines. BMZ also finances projects in which DRM is the main objective. It has also commissioned GTZ to operate the Advisory Project on Disaster Risk Management in Development Cooperation, the GTZ-DRM Sector Project. The project contributes to the mainstreaming of DRM in German Development Cooperation, and promotes the implementation of adequate measures for prevention and preparedness in partner countries. It has a role a adviser to BMZ with regard to DRM and assures international networking. In endeavouring to increase the significance of disaster risk management in the long term, qualified personnel is a key requirement. In cooperation with the Centre for Advanced Training in Rural Development (SLE) and the host programme Environment and Rural Development (EnRD Philippines), the BMZ and the GTZ DRM Sector Project promote this DRM study.

[9] The United Nations declared the 1990s the "International Decade for Natural Disaster Reduction" (IDNDR) and put in place the inter-agency secretariat for the coordination of the "International Strategy

2. Context of the Study

Chapter 2 presents the objectives of the study and its conceptualization. The first section introduces the commissioner of the study and the specific programme into which it is incorporated. The second section outlines the objectives of the study, and the third section describes both the methodology applied and the analytical framework.

The Centre for Advanced Training in Rural Development (SLE) was commissioned by GTZ Philippines, in cooperation with the GTZ-DRM Sector Project, to conduct a study on disaster risk management in the Eastern Visayas. This research is a component of the Environment and Rural Development Programme (EnRD) that GTZ has been implementing since 2005 in cooperation with the provincial governments and other administrative structures of Region VIII (i.e. Eastern Visayas) of the Philippines.

2.1 The GTZ EnRD Programme and Disaster Risk Management

The GTZ-supported Environment and Rural Development (EnRD) Programme was established in July 2005 and seeks to strengthen the capacity of key government agencies at national, regional and local levels to plan and implement natural resource management and sustainable rural development interventions in the Visayas region.

Key EnRD programme components include:

- *Community-Based Forest Management* (CBFM): to strengthen the capacity of the DENR at national, regional and provincial levels, and LGUs in order to facilitate community-based protection, conservation and sustainable management of forests.
- *Community-Based Fishery Resource Management* (CBFRM): to develop the capacities of the provincial Coastal Resource Management Office and selected municipalities of Southern Leyte in order to ensure the sustainable development and management of coastal resources.
- *Urban Development and Environmental Management* (UDEM): to improve the capabilities of urbanized and rapidly urbanizing LGUs to manage their urban

for Disaster Reduction" (ISDR). The United Nations World Conferences on Disaster Reduction in Yokohama (1994), and Kobe (2005), where the "Hyogo Framework for Action" was proclaimed, are further evidence for the growing international significance of DRM.

environment (solid waste management in priority areas, coastal resource management and watershed management).

- *Agribusiness development*: to assist government partners, the private sector and civil society in creating employment and income-generating opportunities.
- *Coordinated Support Service Delivery*: to ensure a demand-oriented service delivery at municipal and provincial levels.
- *Disaster Preparedness*: to capacitate local government units to cope with local natural disasters and support environmental initiatives in order to secure sustainable local development.

The disaster risk management component of EnRD

The disaster risk management component of the GTZ EnRD programme is designed to support measures that will ensure that the established local disaster management capacities are complemented by concrete and technically grounded risk reduction activities in the Community Disaster Preparedness Plans and that such activities are mainstreamed into the local governments' work programme and budget. This initiative was launched in the aftermath of the Guinsaugon landslide in Southern Leyte (2006) with emergency relief provided by the BMZ and the German Embassy, and is currently funded by DIPECHO for a 15-month operational period. Key components of the operation are:

- Multi-hazard mapping at scales of 1:10,000 to 1:250,000 to address the current scarcity of technical and reliable information regarding geohazards at local government level.
- Community hazard and vulnerability assessment (Binahaan watershed, Ormoc, Catarman watershed).
- Community-based and automatic early-warning systems (CBEWS).
- Community-based disaster preparedness training and planning in selected *barangays.*
- Public awareness in communities including *barangay* schools.

2.2 Objectives of the Study

The goals and objectives of the study were defined in close coordination between GTZ's EnRD programme in the Philippines, the GTZ-DRM Sector Project and the research team. This study intends to contribute to the DRM Project implemented by

GTZ by focussing on disaster management planning and the need for capacity development.[10] The **overall goal** was that DRM in Region VIII should be improved, thereby encouraging sustainable natural resource management and minimizing the vulnerability of the disaster-prone population.

This goal was to be supported by ensuring that the following four objectives were achieved:

- GTZ-EnRD/DIPECHO and LGUs to have at their disposal a baseline study of DRM activities in Region VIII in order to improve planning and coordination efforts (Chapter 3.3 and Annex 6 - 9).
- The different perspectives of the local population were to be considered in order to adjust DRM to local needs (Chapter 4).
- GTZ-EnRD and selected LGUs of Region VIII to be informed about options of how to integrate DRM into regional and provincial development plans (Chapter 5).
- GTZ to be apprised about the specific needs for capacity development and training in DRM at the different levels of administrative structure (Chapter 6).

2.3 Methods and the Conceptual Framework

The methodology of the study follows a design for applied research responding to the needs and working practices of development organizations. Appropriate, simple, efficient, and inexpensive methods as developed for RRA/PRA[11] were used. A broad range of sources of information were employed to triangulate gathered and existing data. This intermix of data ensured the inclusion of different views and aspects from all levels of administration, international agencies as well as from the local population and provided a comprehensive perspective on existing local knowledge, requirements and capacities.

2.3.1 Research Methods

The research examines three main aspects:

- Vulnerability to disasters and the perception of risk of the local administration and the local population.
- Integration of disaster risk management into local development planning at the different levels of self governance.

[10] For more details and expected outputs see the Annex 1

[11] RRA/PRA stands for Rapid/Participatory Rural Appraisal. Methods applied comprised the Venn and Rainbow Diagram, problem ranking, the seasonal calendar, SWOT analysis and others.

Existing and needed capacities for disaster risk management.

In order to cover these domains, the following qualitative data collection methods were applied:

- **Semi-structured interviews** with key persons at all administrative levels[12] and with representatives of line agencies and international organizations at regional and national levels.
- **Focus group discussions** (problem ranking, hazard assessment, response and disaster management mechanisms, capacities at *barangay* and municipal levels).
- **Transect walks** to survey areas at risk and to conduct short household interviews.
- **Analysis of documents** (annual investment plans (AIPs), development plans, disaster preparedness plans, laws and memoranda, concepts);
- **Secondary data analysis** to study best practices and to acquire theoretical background, and
- **Workshops** to cross-check the concept and the preliminary results, and to discuss options.

[12] *Barangay*: captain, health worker (BHW), police/*tanods* (parish security), teachers, private sector representatives; Municipality and province: DILG, planning, social welfare, agriculture and engineering department; line agencies such as OCD, NEDA, DENR, the Mining and Geoscience Bureau (MGB), NIA, EMB, the Department of Public Works and Highways (DPWH) at regional and national levels. For a complete list of interviews, see Annex 3 and 4.

Photo 1: A seasonal calendar is discussed in the barangay Malaguicay

2.3.2 Conceptual Framework of the Study

A number of conceptual frameworks exist providing an understanding of vulnerability to disaster and strategies for reducing this peril. Most were developed in the late 1980s and early 1990s but new models have been developed over the last decade (e.g. Sustainable Livelihood Approach) (TWIGG 2007:2). The analytical framework of the current study was based on two models:

Framework 1: Capacities and Vulnerabilities Analysis (CVA)

This practical and diagnostic tool, developed by NGOs, has been widely used in DRM. People's vulnerabilities and capacities are analysed in three interrelated areas: physical/material; social/organizational; and motivational/attitudinal. In this context vulnerabilities are defined as long-term factors that affect a community's ability to respond to events or make it susceptible to disasters. In the current study CVA was used in Chapter 6 to identify existing and needed capacities for disaster prevention, preparedness and response at different administrative levels.

Capacities and vulnerabilities are treated as two ends of a spectrum, seeing that people who have a high degree of vulnerability are low in capacity (and vice versa). Hence, the needed capacities equal vulnerabilities in our analysis. The CVA approach was selected because it seemed to be the most straightforward analytical tool to identify capacity and training needs.

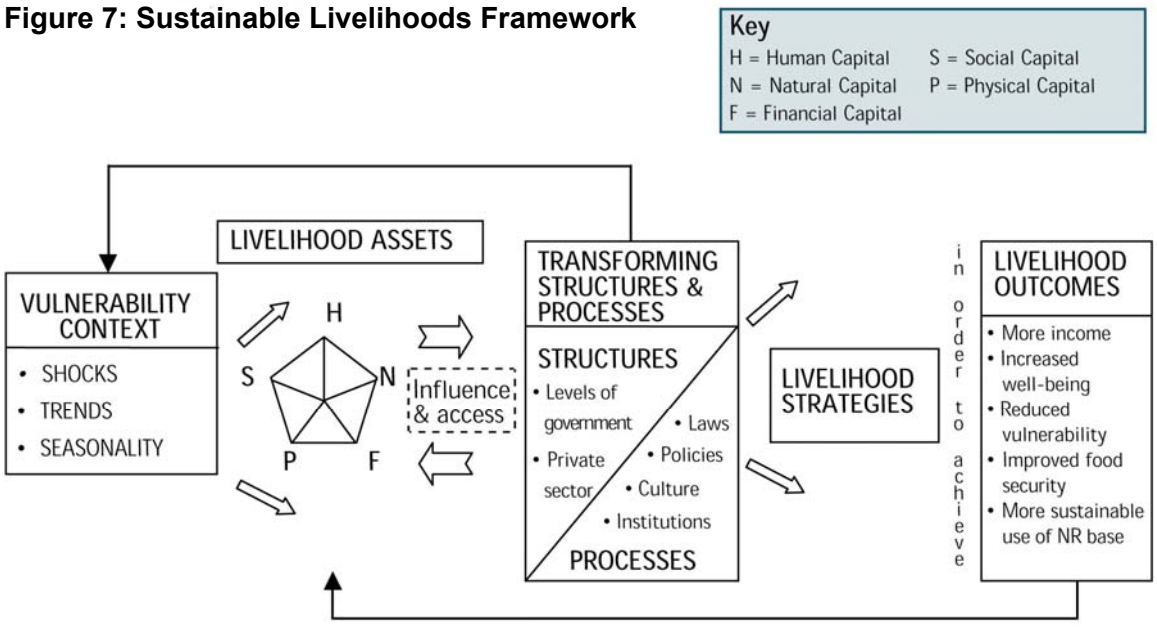
Framework 2: Sustainable Livelihood Approach (SLA)

Whereas most other frameworks employ: disasters = hazard + vulnerability, as the starting point and regard livelihoods as being one aspect of the question, the Sustainable Livelihood Approach places the concept of livelihoods and sustainability at the centre of the discussion. Livelihoods refer to the capabilities, assets and activities required as a means of living. For livelihoods to be sustainable they should demonstrate resilience in the face of external shocks (e.g. disasters) (DIFD: 1999; TWIGG: 2007:8; CANNON *et al*: 2001: 3-4).

Livelihood assets include five different types of capital (social, natural, physical, human and financial) (see Figure 7) and can be visualized as a pentagon. Individuals operate in a context of vulnerability (that includes shocks, trends and seasonality) within which they have access to livelihood assets. These assets materialize through the existing organizational environment (structures) and institutions, policies and legislation (processes). Such structures and processes create livelihood strategies that lead to livelihood outcomes.

The approach is complex and holistic, allowing the many different factors of livelihood resilience to be put in context. Since it regards livelihoods as the key component, the current study has used SLA to analyse livelihoods in disaster-affected *barangays* (Chapter 4). Not all aspects of SLA could be tackled and attention was focussed on livelihood characteristics that increase people's vulnerability to disasters and on how disasters affect livelihood assets. Furthermore, vulnerability is not defined as broadly as in the SLA, but only analysed with respect to disasters (ignoring other shocks, trends and seasonality).

Figure 7: Sustainable Livelihoods Framework



Source: DIFD 1999

2.3.3 Research Area

The research was carried out in two intervention areas of the GTZ DRM component, in the Binahaan and the Catarman watersheds. The watersheds lie in the provinces of Leyte and Northern Samar respectively, with different DRM institutional set-ups, thus providing the opportunity for comparing two systems.

In both watersheds, all the principal municipalities within the river basin were visited. The lowland municipalities within both watersheds which, due to their geography, are more prone to the principal hazard of wide-scale flooding, were the main focus of the study.

Within the municipalities, a certain number of *barangays* responding to different criteria was selected: urban vs. rural, coastal vs. inland, high risk vs. less at risk.[13] Rather than attempting to find a representative sample, the research tried to cover different geo-ecological settings and socio-economic systems existing in the area to broaden the scope of the analysis.

Line agencies were approached according to the team's knowledge of their relevance to DRM (planning, infrastructure, resource management) or livelihoods. The selection of international agencies to be interviewed was dependent on their involvement in activities in Region VIII.[14]

[13] See overview, Figure 8. In Binahaan, the *barangays* most at risk had already been covered by previous GTZ vulnerability analysis. In order to avoid duplication, during this study less threatened ones were chosen.

[14] As discussed with the contractor, no in-depth study was undertaken of the province of Southern Leyte, since it is not a priority area for GTZ's DRM component and since the number of agencies active there would have represented a study in itself.

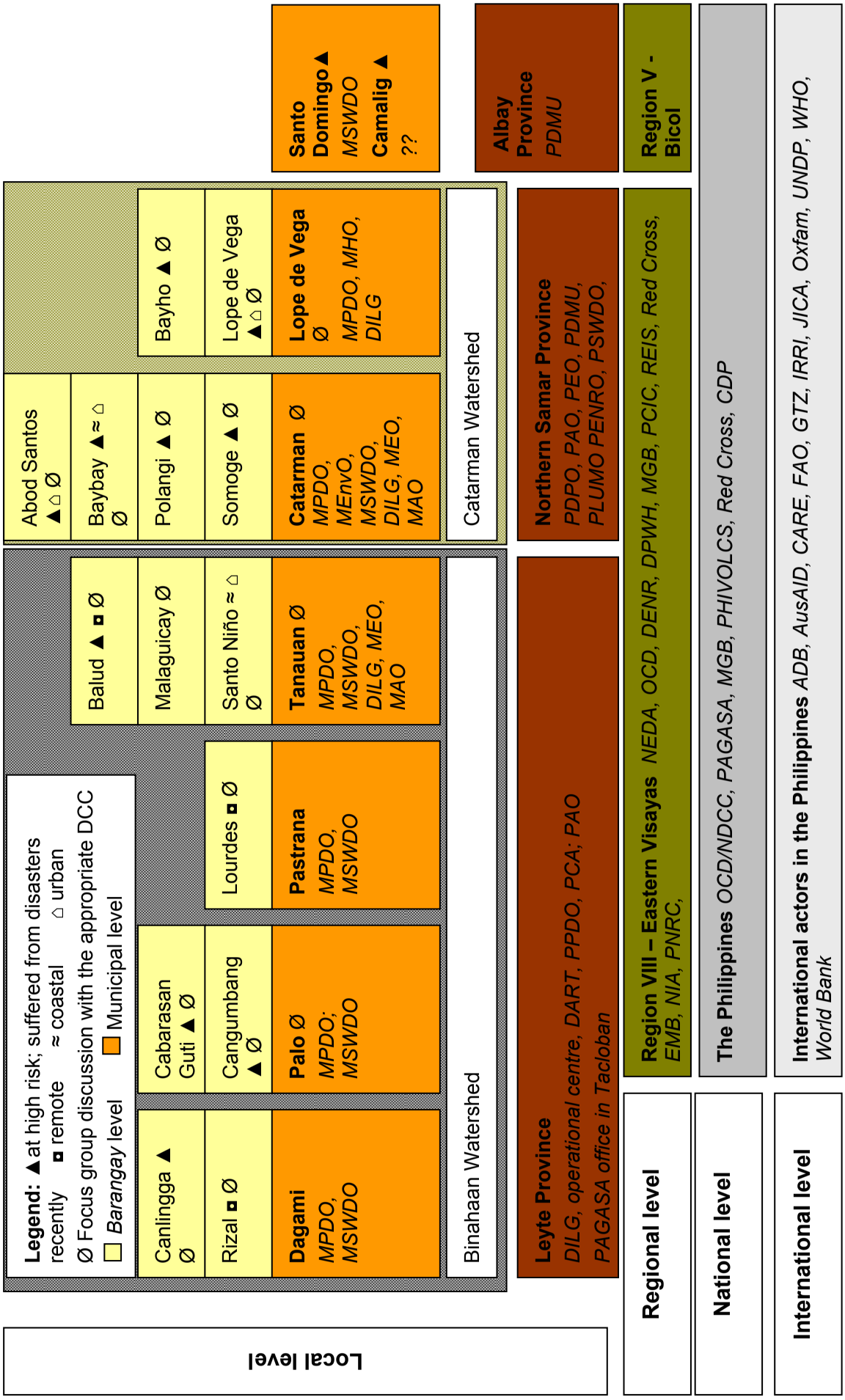


Figure 8: Overview of agencies interviewed at the different administrative levels, and of municipalities and barangays sampled in the two watersheds and Bicol region

3. The institutional Framework

A description of the institutional framework of the DRM system is provided in order to better comprehend the subsequent assessments. This chapter presents an overview of the main legislative provisions and administrative structures in the Philippines for coping with disasters. It introduces the most important existing legislation and structures related to disaster management, and discusses how these provisions have been introduced into the research area with the objective of identifying sectors where reform is needed. The second part of the chapter presents a proposed reform to the existing legislation on disaster management, currently awaiting ratification, the New Philippine Disaster Management Bill, and discusses the recommended amendments. The chapter concludes with a very brief overview of international cooperation activities focussing on disaster risk management in the Philippines and the main DRM project operating under this specific framework is presented.

Given the focus of the study and the quantity of information gathered, only part of the assessment is presented here. Background information and a detailed description of national actors and their responsibilities, as well as of international agencies and their activities and approaches to DRM are found in Annex 6, 7 and 8.

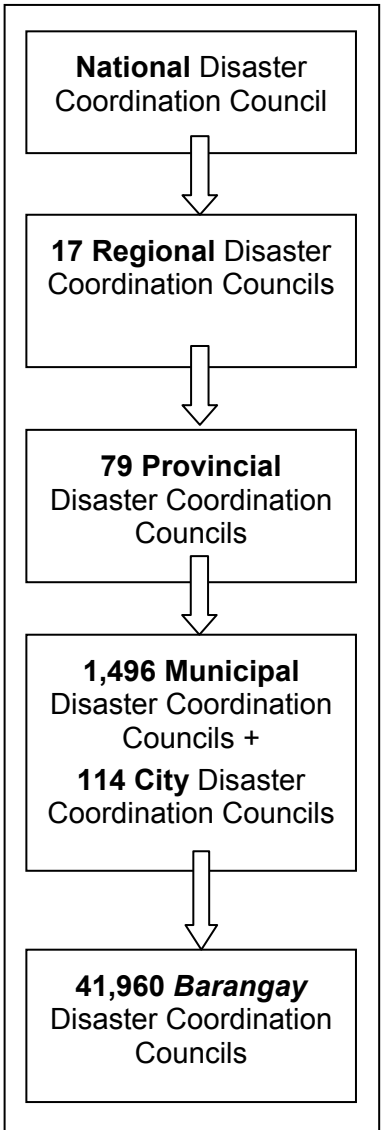


Figure 9: National structure of Disaster Coordination Councils

3.1 The Legal DRM Framework in the Philippines

The legal framework for disaster management is the Presidential Decree No. 1566 (PD 1566) issued in 1978. It led to two decisive innovations: the establishment of Disaster Coordination Councils at all levels of government and the creation of a Calamity Fund for response and rehabilitation comprising 5 percent of the estimated annual budget of a local government unit (LGU). Following an amendment in 2003 parts of the fund can now be used for preparatory and preventive measures.

3.1.1 PD 1566 and Disaster Coordination Councils

Disaster Coordination Councils (DCCs) were institutionalized by the Presidential Decree 1566 for all levels of government (see Figure 9). National and regional disaster coordination councils are constituted by national government agencies (line agencies) and have mainly an advisory function for policy making and in supervising the implementation of guidelines at lower levels. They are both operated on a permanent basis through an official Secretary, the Director of the Office of Civil Defence and depend on member agencies for their budget.

Provincial, municipal and *barangay* DCCs are composed of all the administrative departments and chaired by the respective Local Chief Executive (LCE). They are involved with the actual management of disasters when they occur within their level of responsibility. They seek to develop self-reliance among local government units in dealing with disasters. The significance of the *Barangay* Disaster Coordinating Council (BDCC) and the Municipal Disaster Coordinating Council (MDCC) lies in their proximity to local communities that are the first to be affected by actual emergencies and the various aspects of emergency management (JINON 2006).

The DCCs usually get together when a disaster occurs. Their main tasks are:

- *before disasters*: drafting of disaster preparedness plans; establishing a Disaster Operations Centre (at regional level); organization of preparedness and response mechanisms; provision of public information, communications and warnings; preparations for possible evacuation;
- *during disasters*: coordinating disaster operation activities: emergency transportation, rescue operations, coordination of fire brigades, police forces and health services; needs assessment and communication with the next higher level;
- *after disasters*: coordinating relief and rehabilitation; damage and needs assessment; engineering; price control.

The DCCs at higher administrative levels should support the next lower level in the organization of the DCCs thus strengthening the self-reliance of the lower LGUs.

In the case of a disaster, the chairman summons the members of the council (LGU departments), the local police and fire brigade and (sometimes) civil society to coordinate relief operations. Ideally, the DCC receives information from the disaster area to respond to immediate needs. In a second phase, representatives of the DCC conduct a damage survey on the ground in order to obtain more detailed and reliable information. The departments are elements of service units. Their responsibilities are described in detail in the disaster preparedness plan of the LGU (see Figure 10). If the council gauges the internal capacities insufficient to cope with the situation, it may appeal to the next higher administrative level for support.

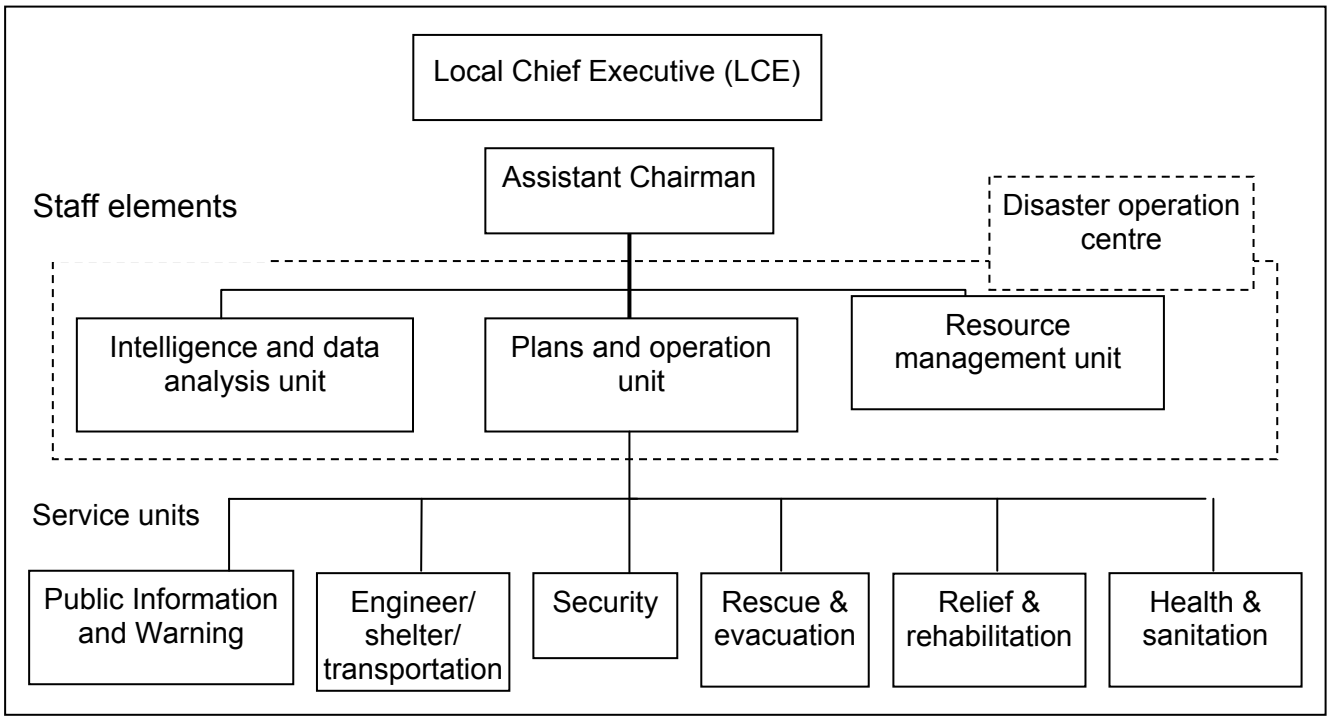


Figure 10: Composition of Provincial, Municipal and Barangay Councils (PDCC, MDCC BDCC)
Source: GTZ EnRD

3.1.2 The Calamity Fund

The Local Government Code of 1991 devolved responsibilities regarding basic services and facilities such as health, social welfare, infrastructure and disaster management to Local Government Units (LGUs) and encouraged measures focussing on disaster mitigation. 5 percent of the annual local government budget is earmarked for the Calamity Fund[15], to be set aside for relief, rehabilitation, reconstruction, and other services linked to calamities occurring during the budget year.[16] Any unspent balance from the Fund is to be transferred for re-appropriation during the succeeding year or can be used for unexecuted projects associated with a disaster occurring in the current year.

The Joint Memorandum Circular 2003 (JMC 2003) amends this rule stating that disaster preparedness training, maintenance and operating expenses as well as specific preparatory measures may now also be funded through the Calamity Fund. Funds are apportioned as follows: 30 percent for pre-disaster, 20 percent for rapid

[15] In the original PD 1566, 2 percent of the expected annual budget was to be allotted to the Calamity Fund. The amendment was enacted through Republic Act 8185.

[16] The OCD-NDCC emphasized that these funds were to be utilized for response activities only - preparedness measures were to be funded from the regular development fund comprising 20 percent of the annual budget.

response and 50 percent for relief and rehabilitation. Only in the eventuality that the Calamity Fund is depleted can the affected LGU apply to the next higher administrative level for financial assistance.[17] Through the General Appropriations Act of 2005, the NDCC earmarked 20 percent of the national Calamity Fund as Quick Response Fund to support LGUs in need of assistance for relief and rehabilitation. All government departments are explicitly authorized to use their appropriations for projects addressing disaster prevention, mitigation and preparedness (OCD 2007).

Photo 2: Office of Civil Defence promoting the national disaster preparedness program

3.1.3 A Brief Assessment of Disaster Management Structures

A detailed assessment of the capacities of LGUs in the research area to deal with disasters and to perform their duties as defined in PD 1566 is provided in Chapter 6.

[17] It is mainly LGUs of the 4th to 6th class that apply for support from the national Calamity Fund. According to the Bibingka Doctrine, LGUs must co-fund projects supported by the national Calamity Fund: those of the 1st class shall contribute 50 percent, 2nd class 40 percent, 3rd class 35 percent and 4th class 30 percent of total project costs. LGUs of the 5th and 6th class are exempted from such contributions (OCD 2007: 10).

Here it shall be sufficient to state that disaster coordination councils are at least partially able to carry out their duties related to disaster response. They exist at higher administrative levels and are sometimes present down at municipality level. However, some deficiencies within DCCs in the research area became apparent.

Regular meetings of the councils are an exception rather than the rule and disaster preparedness plans, describing the responsibilities of the departments in case of disaster, barely exist at *barangay* and municipal levels. DCCs are insufficiently equipped and capacitated. There is little awareness of the fact that the Calamity Fund can be spent on preparedness measures, which contributes to the fact that the DCCs do not devote adequate attention to prevention and mitigation.

Communication and coordination between the different levels of administration are reported to be insufficient and inadequate. The line of operation (region → province → municipality → *barangay* and vice versa) is sometimes ignored for various reasons[18], leading to a duplication of effort or the neglect of less obvious disaster victims. The information flow between the different administrative levels concerning needs is described as less than optimal and damage reports are sometimes influenced by particular interests. *Barangays* remain dependent upon the municipality (or the province) for material support during rescue and relief operations.

A determined shift towards more proactive and preventive disaster management should be accompanied by the institutionalization of permanent disaster management units at least at the provincial level and in municipalities at risk. In some areas such units do function to some degree (in Albay and Northern Samar) out of necessity and due to the initiative of the local chief executives, but they are, for the time being, not mandatory. The following section illustrates what a reformed system could look like.

3.1.4 Conclusions: A Need for Reform

The provisions under PD 1566 perpetuate a top-down system of operation, comprising nearly 46,000 administrative units, difficult to manage effectively and offering little incentive for local initiatives. The approach remains response-oriented, despite some promising attempts to initiate preventive activities. Efforts have been made to strengthen local self-reliance, but dependence on the next higher level for relief and rehabilitation remains high (BRITTON 2006: 5). The system is appraised as "outmoded" (WORLD BANK 2004) and in need of reform.

[18] Relief and rehabilitation is always also a political issue, since relief operations can help build the status of the executing bodies. Another reason for bypassing the structure is (good or bad) personal relationship between LCEs of various levels and sheer ignorance of the proper procedure.

The research has shown that, the lower the administrative level, the more unlikely it is to find disaster management structures. If at all, DCCs at *barangay* and even at municipal level group together to manage disaster effects. Neither is their Calamity Fund sufficient to cope with even minor disaster effects nor is their development budget adequate to plan for long-term disaster prevention structures. There is little awareness of the fact that components of the Calamity Fund can be used for preparedness and prevention. Unspent money available in the Calamity Fund is rarely re-appropriated for the budget of the subsequent year but is rather distributed as a Christmas bonus.

Despite the existing legal framework, the actual implementation of disaster management activities remains highly dependent on the motivation of the local chief executive or on initiatives launched at higher administrative levels. The advantages to be gained from a proactive approach to disasters has been recognized by two provinces (Albay[19] and Northern Samar), which have institutionalized permanent disaster management structures within their provincial administrations (see Text Box 2). Discussions on how to better cope with disaster are ongoing at higher levels.

[19] A visit was organized to the province of Albay as a best practice example where, for several years now, a permanent DRM structure has been institutionalized at provincial level. The team of three organized one interview with the Provincial Disaster Management Officer and two meetings with disaster focal persons at municipal level. They also visited a *barangay* affected by volcano-related hazards.

Text Box 2: Disaster Management Programme of Albay

The province of Albay is affected by natural and man-made hazards such as typhoons, volcanic eruptions, earthquakes, landslides and storm surges. Albay is increasingly affected by typhoons, Mount Mayon is one of the most active national volcanoes and the Philippine Fault as well as the Philippines Trench traverse the Province.

These conditions present a major constraint for the development and prosperity of Albay. This has led to the creation of the Provincial Disaster Management Office (PDMO) as a permanent department in the provincial capital. With the approval of the Civil Service Commission, budget was appropriated for the personnel services and the operating expenses of the PDMO. This provided the PDCC with a permanent technical secretariat.

Since its institutionalization, the PDMO has adopted a holistic approach towards disaster management, focussing on all phases of the disaster management cycle. In this connection, pre-disaster activities are conducted regularly. The services and programmes provided by the PDMO are as follows:

- Assessments to identify vulnerable areas and to gather data for planning;
- Emergency Planning (stockpiling, policy-making, mitigation work);
- Institutional strengthening (organization of Municipal Emergency Response Teams, Reorganization of local DCCs);
- Structural and non-structural mitigation (i.e. formulating and recommending measures that require legislative support);
- Warning System (communication and warning);
- Response Mechanism (transportation, evacuation, search, rescue and recovery);
- Public Education and Training (education and information campaign, disaster management training, emergency rescue training; industrial safety courses);
- Rehearsals (emergency drills).
- Activities are funded through the budget appropriated by the governor, the Calamity Fund, and through donations. The institutionalization of the PDMO has shown encouraging results:
- Community-based disaster management training is regularly conducted in hazard-prone municipalities and *barangays*;
- Coordination between the population and the disaster management office is continuously improving;
- DRM-related communication between the provincial, municipal, and *barangay* levels has improved (a Municipal Action Officer has been nominated who serves as the focal point for all DRM-related activities and is in close contact with the PDMU);
- Disaster emergency response is well coordinated;
- Policy continuity has improved, since PDMO staff have permanent formal positions which are not dislocated during transitions of political leadership.

3.2 The New Philippine Disaster Management Bill

A pending “New Philippine Disaster Management Bill” aims at reforming the system and harmonizing it with global trends in disaster risk management. The main objectives of this new legislation are to draft comprehensive guidelines for an all-hazards, multi-sectoral and community-based approach to DRM leading to coherent risk reduction and management at all levels. The institutional arrangements

recommended seek to review the legal basis and the organizational framework for an effective protection of human and economic resources. The main thrusts are

- strengthening of institutional structures for coordination and implementation as well as monitoring and evaluation;
- decentralization of resources and responsibilities;
- participation of civil society and the private sector;
- individual and organizational capacity development for disaster risk reduction, and
- integration of DRM into development planning taking hazard and vulnerability assessment into account.
- Compared with the existing legislation, the main innovation is the institutionalization of permanent disaster management structures at all administrative levels. These permanent structures will help to develop and oversee preventive activities in the planning and implementation process and will capacitate units at lower levels to cope with their DRM-related tasks.

3.2.1 Proposed New DRM Structures

The NDCC is to be renamed the National Disaster Management Council (NDMC). Membership will include government agencies, disaster related research agencies, People's Organizations (PO) and NGOs. Similarly to the existing system, but with a focus on prevention, the NDMC will be empowered with policy-making, coordination, integration, supervisory, monitoring and evaluation functions and will ensure that government agencies, as well as LGUs, take adequate measures to prevent, mitigate, prepare for, and respond to disaster and assist in the recovery. The OCD remains the secretariat of the NDMC, responsible for administering the national DRM programme and for ensuring the implementation of DRM programmes by NDMC member agencies and local Disaster Management Councils (DMCs). The DMCs were formerly known as the local disaster coordinating councils. Their responsibilities would be similar to those under the previous structure – coordinating disaster preparedness and response – but with a significant shift to disaster prevention:

- identification and management of risks and hazards through cost-effective risk reduction strategies;
- developing, implementing and monitoring DRM plans;
- integrating risk reduction into local development plans;
- establishing an operational Disaster Management Centre, and
- making available suitably trained personnel for DRM.

The DMCs are to be supported by a network of accredited community disaster volunteers (ACDVs).

A permanent Disaster Management Office is to be established at all LGU levels to serve as the secretariat for the local DMC. This office will have staff units for administration and training, research, planning, operations and warning. The Office's main tasks would be to:

- develop and implement disaster risk management programmes;
- prepare annual programming for the 5 percent Calamity Fund and for other regular funding sources, and
- coordinate response activities.

Disaster Risk Management will be mainstreamed into national and local planning both for the physical framework plans and for the mid-term development plans.[20] The NDMC will prepare a DRM framework which can be used as a guideline for the development and implementation of projects, programmes and activities.

The Calamity Fund remains at 5 percent of the annual budget and will be used for prevention, mitigation, preparedness, response and rehabilitation. It can explicitly be used for enforcing building codes and technical standards, for risk identification, analysis and mapping, for early warning, awareness, training and education, for environmental protection and for paying Government Service Insurance System (GSIS) premiums. (EMI (Earthquakes and Megacities Initiative) 2007:2).

3.2.2 Comments on the Proposed Reform

The core of the reform is the institutionalization of permanent DRM units to underline the paradigm shift towards more preparedness and prevention. Despite the fact that all actors involved recognize the need to overhaul the existing system and that the main characteristics of the reform (empowerment, introduction of a participatory approach, support for proactive collaboration) are not disputed, the reform itself has been in the pipeline since the year 2000. Lobbying for a reform along the lines of the new disaster management bill is one approach that could be adopted by major international agencies. There is a positive climate for change, since the President of the Philippines is according high priority to the issue and the international community appears to be growing tired of supporting an inefficient system.

Permanent disaster risk management structures could ensure an optimization of planning with regard to DRM requirements and could take responsibility for

[20] For details see Chapter 5

monitoring programme implementation and the use of the funds earmarked for disaster-related issues (see Chapter 5). Permanent DRM units could play an important role in capacitating departments at the same administrative level and the next lower LGU to better accomplish their tasks and to mainstream DRM into local planning (see Chapter 6). Simultaneously these units would ensure that communities are prepared for the remaining risk and that response structures are operational, rapid and efficient.

Given the limited funds available, the varying disaster risks and the quality of planning at *barangay* level, it is questionable whether institutionalized permanent DRM units should be instituted within every *barangay*. The introduction of permanent structures down to the municipality level with focal points at *barangay* level, acting as their counterparts, should be sufficient to ensure clear responsibilities and communication lines, better interaction with the municipal level, and instruction for mid-term planning without seeking additional resources and manpower. Thus this appears to be a more practical arrangement for implementation

The visits to regions where permanent disaster management units exist provided encouraging evidence that such structures can, in the long run, help to better prepare communities. However, it should be stressed, that institutionalization without adequate training, funding and monitoring will fail to deliver the anticipated positive results. In the first years of their existence, in particular, the disaster management units should be adequately assisted to ensure that their performance responds to the needs and reasons for their creation.

It is difficult to anticipate if and when this new bill will be ratified. Currently, the undertaking appears to be hindered by the multitude of proposed drafts and the inability to agree on one supported by a majority. In addition, many of the drafts remain response oriented and merely assume the structural status quo (EMI 2007: 6). Lobbying for the adoption of a new law which would reform the DRM system, as described above, could be an area of activity that could be pursued by international organizations.

Text Box 3: The READY Project – Hazard Mapping and Assessment for Effective Community-Based Disaster Risk Management (2006 to 2009)

Donors: UNDP, AusAID, JICA **Total Funding:** US$4,314,372

Project Management and Monitoring: OCD through NDCC

Project Implementers: CSCAND (Collective Strengthening of Community Awareness for Natural Disasters) – multi-agency working group comprising NDCC-OCD, PAGASA, PHIVOLCS and MGB.

Location: 27 high-risk provinces including Leyte, Southern Leyte and Northern Samar.

Goal: Strengthen the capacities of key stakeholders in localities vulnerable to natural hazards to: (i) protect and enhance the quality of the natural environment and sustainably manage their natural resources; and (ii) prepare for, and respond appropriately to, natural disasters.

Objectives: (i) Equip key stakeholders with resources, knowledge and training for DRR;

(ii) Strengthen coordination with organizations and sectors (public, private, community) involved in DRR; (iii) Initiate the mainstreaming of DRR into local development planning.

Phase/Component 1: Multi-hazard identification and disaster risk mapping

- Prepare multi-hazard maps at scales of: 1:50,000 (provinces) and 1:10,000 (municipalities and *barangays*).
- Identify: (i) the location of elements at risk; (ii) proposed risk reduction measures, and (iii) existing institutional mechanisms used to deal with hazards.

Phase/Component 2: Community-based disaster preparedness

- Devise community-based early-warning systems for sudden-onset hazards (landslides, flash floods, tsunamis).
- Reinforce information flows from source to recipient with regard to hazard warnings and teaching communities to conduct regular dry-runs or drills.
- Organize community-based information, education and communication (IEC) activities.

Phase/Component 3: Initiating the mainstreaming of risk reduction into the local development planning process

- Encourage LGUs (municipalities and *barangays*) to review development plans and assist them in promulgating relevant ordinances for the implementation of DRR activities.
- Establish procedures identifying hazards and risks, assigning the appropriate importance to possible impacts.
- Assist LGUs during the integration of risk reduction in development planning.
- Support the drafting of Regional Disaster Risk Management Plans.
- Initiate efforts for the establishment of a platform to coordinate donor activities in the Philippines.

Work towards the possibility of project expansion to cover the whole country in the coming years (possibility referred to in a personal communication UNDP/AusAID).

Evaluation of the Project:

READY is a flagship initiative demonstrating the paradigm shift within the national government in the aftermath of the Guinsaugon disaster (pers.comm. Allen Molen).

Most **important project** on DRM in the Philippines. CSCAND agencies are heavily involved.

Hazard maps are fundamentally important as a basis for any further DRM activities.

READY has substantially contributed to improved cooperation between the CSCAND agencies.

It is under-represented at the community level and provides for small-scale, highly inter-active capacity development initiatives.

Shortcomings:

The quality and scale of the maps are questioned. Areas are declared “landslide-prone” only on the basis of having a steep slope, factors such as soil or vegetation cover are neglected. (pers. comm. REIS).

The mapping component of READY has a strong focus on capacitating national agencies. The neglect of regional level entities and Local Government Units threatens sustainability (pers.comm. MGB RVIII).

READY previews only one workshop to present the hazard maps to communities. This is insufficient to enable the barangays to be able to interpret the maps (pers.comm. PHIVOLCS).

3.2.3 International Cooperation under the Given Conditions

The importance of disaster risk management is now widely acknowledged in national discussions and in international development cooperation. Even though international agencies are promoting a change in the legal framework (see Section 3.2.2), for the time being they have to function as efficiently as possible under the given conditions.

All agencies strive to strengthen existing local capacities in order to improve their performance at their respective levels of intervention. While the occurrence of a disaster is still the main trigger for becoming involved in DRM, most agencies aim at a long-term engagement following a calamity in order to establish effective prevention and preparedness structures. For most agencies, DRM constitutes a cross-cutting issue that is increasingly integrated into all of their programmes.

In Region VIII, the landslide in Guinsaugon (Southern Leyte) was the most recent trigger for many organizations to get involved in DRM. A list of national and international agencies focussing on DRM issues that are active in the Philippines, together with their mandates and a review of recent DRM studies can be found in Annex 6 - 9.

There is currently substantial involvement in DRM in the Philippines on the part of many international agencies. UNDP, JICA, GTZ, Oxfam, Australian Aid, CARE, FAO and others support DRM through structural (infrastructure) and non-structural (capacity and community development as well as livelihood) activities.

The most important DRM project in Region VIII and in the Philippines is currently the READY initiative, financed by UNDP and AusAID and bringing together different national agencies working on DRM (see Text Box 3). The READY project, which is coordinated by the Office of Civil Defence (OCD)[21], has constituted a multi-agency working group composed of national research and forecasting institutions to strengthen community awareness on DRM through hazard mapping in their specific subject areas and through the installation and supervision of early-warning systems (EWS).

[21] Details on OCD are described in the Annex 6

3.3 Conclusions

The research has shown that the lower administrative levels are barely able to manage disaster effects other than the most critical ones and are not in a position to plan for and take preventive measures. Responsibilities, communication and coordination within and between the levels are insufficiently clarified. Presidential Decree 1566 perpetuates a top-down system and provides little incentive for local initiative. Efforts are being made to strengthen local self-reliance, but dependence on the next higher level for relief and rehabilitation remains high. The approach remains response-oriented; the system is in need of reform.

Reforms are under discussion and a proposal for a new legal framework for the organization of the DRM structure has been put forward. The core of the reform is the institutionalization of permanent DRM units which could ensure an optimization of planning with regard to DRM and could be responsible for monitoring the implementation of the plans and the use of funds earmarked for disaster-related issues. Permanent DRM units could play an important role in capacitating departments at the same administrative level and the next lower LGU to better perform their tasks and to mainstream DRM into local planning.

International agencies often engage in long term, preventive DRM measures following situations of relief and rehabilitation. While the reform is being discussed, organizations are working under the prevailing conditions to improve the DRM capacities in the Philippines. The multi-agency project READY, financed predominantly by UNDP and AusAID and implemented by national agencies sets an example for how some improvements within the given system can be achieved. Lobbying for a reform along the lines of the new disaster management bill is one field of activity major international agencies could opt for.

The READY project includes capacity development of project partners up to a certain level. Given its scale and scope, it cannot devote a great deal of attention to the needs and perceptions of the local population under very specific situations. However, since planning should be done **with** the local level rather than **for** the local level, this perspective should nevertheless be considered.

In the next chapter, an assessment is made of how the population in the research area is affected by disaster and where the research team perceives the priorities for intervention. This assessment shall serve as a basis for further evaluation of the planning process and of capacity-building needs.

4. Vulnerability and Risk Perception

One of the international actors involved in DRM activities in region VIII is GTZ. Among other areas, GTZ is operative in two flood-prone watersheds in the provinces of Leyte and Northern Samar. Hence these two watersheds were selected as the research area. This chapter provides a closer look at the *barangay* and municipal level in order to gain an understanding of: (i) livelihood characteristics that make people vulnerable to disasters; (ii) how people's livelihoods are affected by disasters, and (iii) how they perceive the risk they are exposed to. The results of this assessment provide a basis for proposing interventions that reduce people's vulnerability to disasters (this chapter) and for identifying disaster prevention measures that should be integrated into the planning process (Chapter 4). The assessment results are also used to elaborate recommendations for capacity development adapted to the situation on the ground (Chapter 6).

4.1 Investigated Watersheds

The current study investigated two watersheds in two provinces of Region VIII – the Binahaan and Catarman watersheds (see Figure 11). Figure 12 provides an overview of the principal natural hazards occurring in region VIII.

4.1.1. The Binahaan Watershed

The Binahaan watershed is situated in the province of Leyte, south of the regional centre Tacloban. It is the source of water for the Leyte Metropolitan Water District (LMWD) which comprises seven municipalities. The river, which is about 61 kms long, has a catchment area of approximately 33,500 ha (REIS, pers. comm.). Four populous municipalities in the lowland areas - Dagami, Pastrana, Palo and Tanauan – and eight out of almost 200 *barangays* were included in the research. In the Binahaan watershed most income is generated by the production of copra and rice (partly irrigated) and by other small businesses.

With the support of BMZ, GTZ became active in the watershed in 2005, conducting vulnerability analyses and surveys in 31 selected lowland *barangays* (pers. comm. GTZ EnRD). One result of this intervention has been the installation, in June 2007, of an early-warning system for floods.

4.1.2. The Catarman Watershed

The Catarman watershed is situated in the Province of Northern Samar with an estimated catchment area of 12,000 ha (REIS, pers. comm.). The river has its source in the mountainous area north of Calbayog and flows through the municipalities of Lope de Vega and Catarman into the Pacific. Both municipalities comprise in total 77 *barangays*. Most of them are rural, the main income is derived from copra production, fruit trees, root crops, abaca and rain-fed rice. Samar is one of the poorest areas in the Philippines with little industry (REESE and WERNING: 2006). So far, national and international actors have devoted little attention to this province. GTZ's activities in disaster risk management in this watershed started at the end of 2006.

An overview of basic data for the investigated municipalities in both watersheds is provided in Table 3. Data from different sources sometimes vary substantially.

Table 3: Basic data for the municipalities investigated in the two watersheds

	Binahaan Watershed				Catarman Watershed	
	Dagami	**Palo**	**Pastrana**	**Tanauan**	**Catarman**	**Lope de Vega**
Number of *barangays*[2, 3]	65	33	29	54	55	22
Land area (ha)[1]	16,170	22,130 (8,019 [5)])	8,640	7,840	46,440	28,000
Population (2000) [1]	29,240	47,982	14,351	45,056	61,671	11,754
Annual average rate of population growth (1995-2000) [1]	1.69	2.33	n.a.	2.19	2.00	n.a.
Density of population (inhab./km^2) [1]	180.9	216.8	166.2	574.6	145.7	42.0
No. of households (2000) [1]	5,776	9,272	2,805	9,224	12,437	2,114
Average household size (2000) [1]	5.1	5.2	5.1	4.9	5.4	5.6
Irrigated rice (in ha)[2, 3]	1,482	616 (1,067 [5)])	735	631 (600 [4)])	148	40
Non-irrigated rice in ha[2, 3]	999	416 (1,381 [5)])	495	425 (1,800 [4)])	2,900	270
Coconuts in ha	n.a.	2,171 [5)]	n.a.	2,000 [2)]	16,000 [3)]	15,000 [3)]
Income Class (2003) [1]	4th	2nd [5)]	5th	3rd	3rd (2007)	5th

[1] From the National Statistics Coordination Boards (Regional Social and Economic Trends, Eastern Visayas Region, 2007).
[2] From the Provincial Physical Framework Plan (PPFP) of Leyte, 2000–2009.
[3] From the Comprehensive Land Use Plans (CLUPs) of Catarman and Lope de Vega (2000-2010).
[4] From the Socio-Economic Profile (SEP) of Tanauan 2007.
[5] From the Executive Legislative Agenda (ELA), Palo, 2008.
n.a. = not available

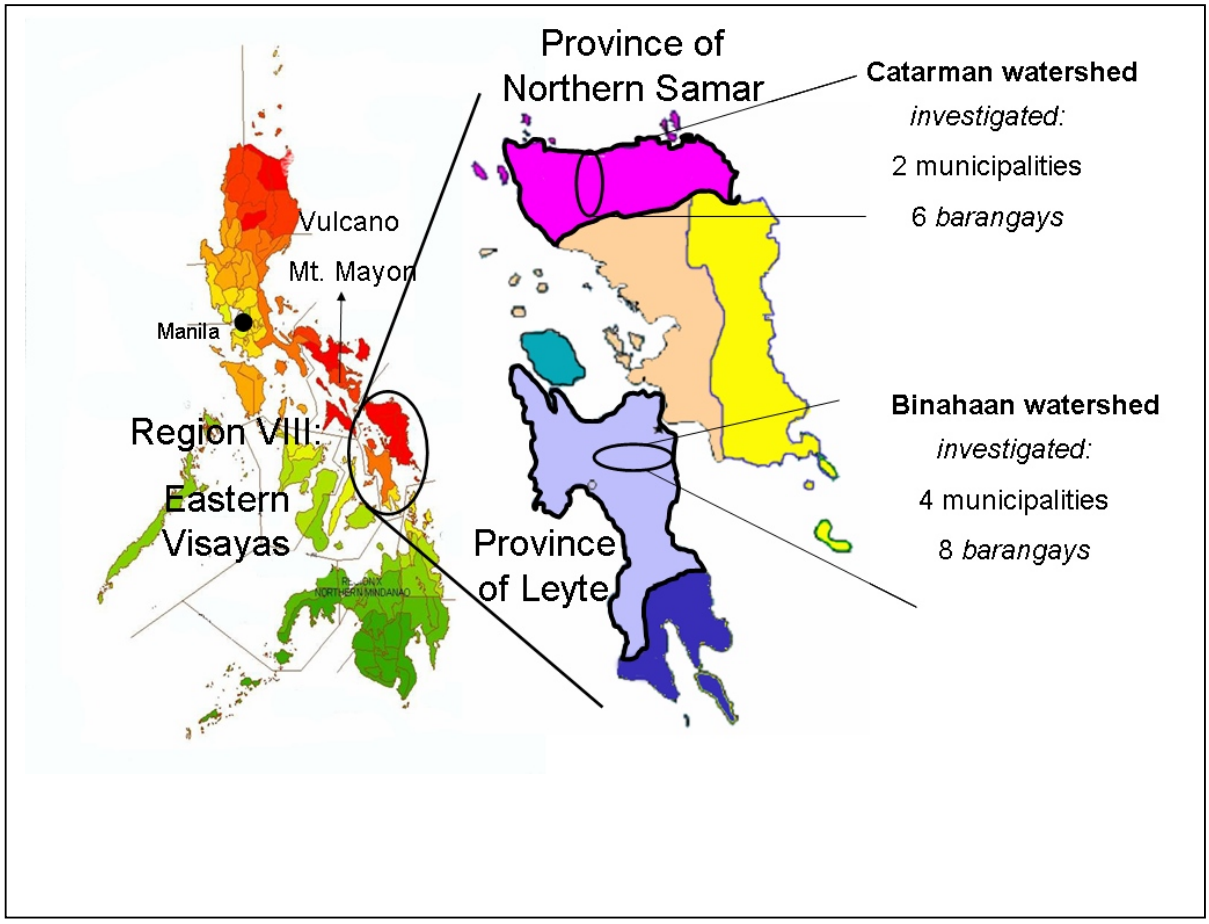


Figure 11: Location of Region VIII in the Philippines, and the Research Area in the Eastern Visayas (right)

Sources: Hydro-meteorological map from GTZ EnRD; Province map

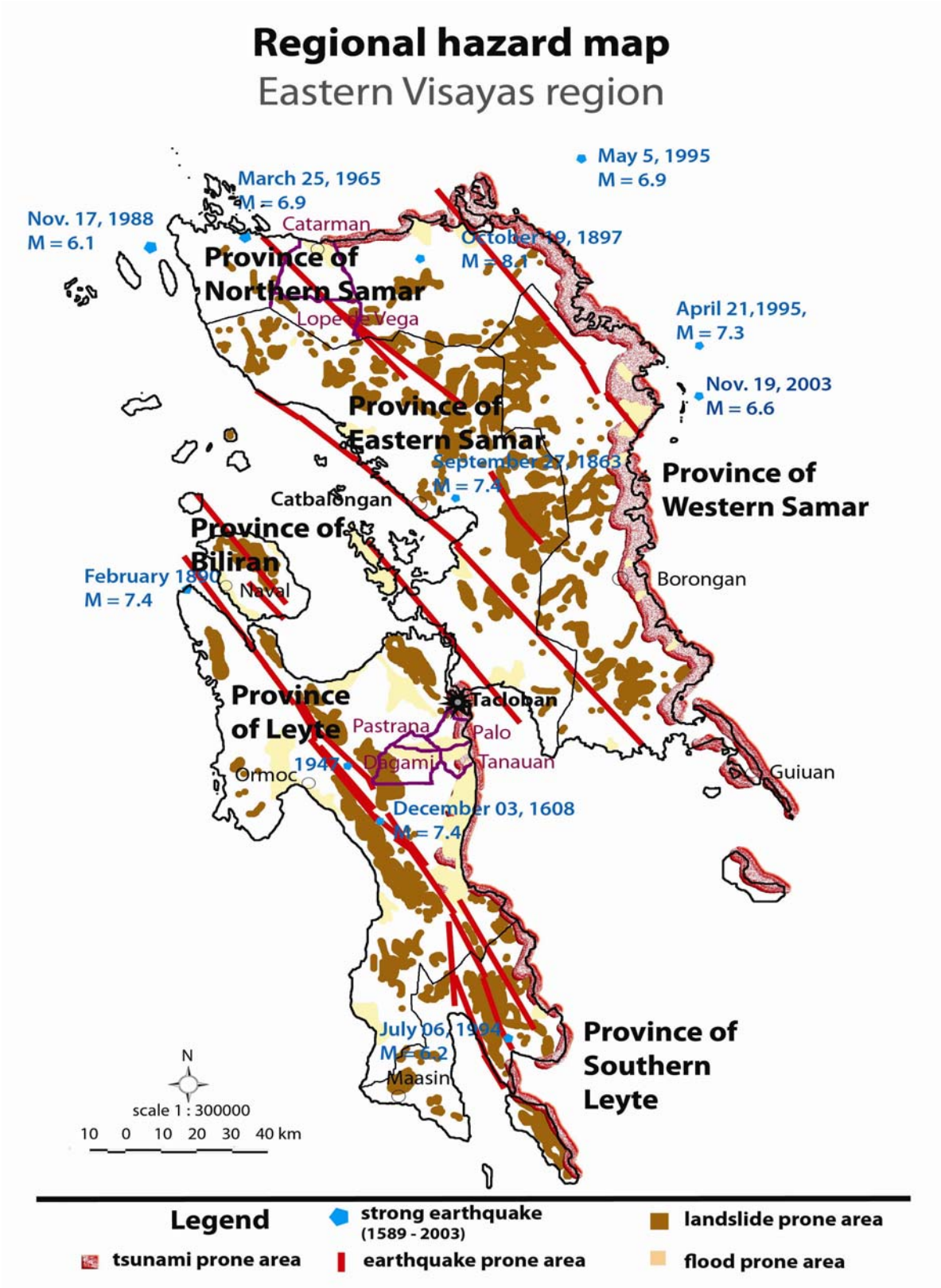


Figure 12: Principal Natural Hazards in Region VIII

Municipalities included in the research are identified by violet borders and names. Major earthquakes are indicated with a date and magnitude (M, Richter scale). Source: REIS, modified.

4.2 Resources and Vulnerability in the Investigated Watersheds

An analysis of the circumstances and livelihood status of the local population should provide guidelines for adapted bottom-up development planning. Their capacities as well as their opinions should be considered if adequate measures are to be designed. Such an approach challenges local planners as well as international organizations. The United Kingdom Department for International Development (DFID) developed a framework to improve the understanding of livelihoods, to be used in planning new development activities and in assessing the contribution these activities make to livelihood sustainability (DFID 1999: 2.1) (for more background information about the analytical framework see Chapter 1). In order to understand people's living conditions and the relationship between disaster impacts and livelihood strategies, the study explored the priority problems at *barangay* and municipality level using PRA tools (see Chapter 2.3). The livelihood asset pentagon from the Sustainable Livelihood Approach was used to provide an overview of livelihood characteristics that make people vulnerable to disasters. Figure 13 illustrates these problems for both watersheds using DFID's pentagon categories.

Main factors aggravating vulnerability in the investigated *barangays*:

- **High seasonality of employment, agricultural work and fishing** increases people's vulnerability to losses during the productive season since means of income are limited in the off-season. For several months people have to seek alternative sources of income, causing residents from rural areas to migrate to close-by urban centres. However, the absorption capacity of these centres is limited, forcing the migrants into day labourers' jobs and often constraining them to settle in marginal, hazard-prone land[22]. The lack of employment also leads to migration to Manila and abroad.
- **Monocultures** (coconuts and rice) increase the vulnerability to hazards, diseases and vermin[23]. Farmers usually lack alternatives to these crops, making them highly dependant on the yield of one species. Limited technical facilities such as

[22] In Northern Samar this situation is aggravated by the presence of the New People's Army (NPA) and the reluctance of the national government to launch development activities there (REESE, N; WERNING, R: 2006: 93).

[23] e.g. "Golden Cohol", a snail feeding on rice seedlings originally imported as a source of protein, that has become a serious problem due to uncontrolled reproduction in rice fields.

irrigation systems force people to rely on seasonal rain thus reducing the number of possible harvests. This is especially true for Northern Samar.

- **Illegal logging** contributes to a higher probability of the occurrence of hazards. A lack of, or sparse vegetation reduces the water storage capacity of soil and leads to erosion during heavy rains. Such conditions can exacerbate floods and rain-induced landslides. The enforcement of a ban on logging activities is hampered by a lack of political will and capacities. Besides large-scale illegal logging, local people are often dependent on firewood for cooking or on clearing forest land for "slash and burn"[24].
- **High population** growth results on the one hand in an abundance of manpower but on the other hand it leads to increased pressure on (limited) resources (land, crops, fish) resulting in an unsustainable use of resources. The increasing population density also forces people to settle more and more in hazard-prone areas.
- **Limited access to transport** minimizes and retards possibilities for trade, information exchange and support activities. Most *barangays* in the Catarman WS lack farm to market roads and have neither cellular phone transmitters nor landline phone connections for rapid **communication**.
- Unbalanced diets partly due to poverty, inadequate food storage facilities and limited knowledge with regard to balanced nutrition cause **malnutrition** in children. This is accompanied by a **lack of medicines and medical facilities**.
- **Limited investments** due to a lack of capital, low income and **increasing indebtedness** as a result of the high interest rates charged by lending agencies and private money lenders (such as landowners to their tenants) in case of an urgent need for cash. This contributes to the limited success of alternative livelihood programmes, hinders access to higher education or prevents people from investing in mitigation measures such as crop insurance (see Chapter 4.4).

[24] "Slash and burn" refers to the cutting of forest or woodlands to create fields for agriculture or pasture for livestock. In tropical ecosystems, that are characterized by soils of poor nutrient quality, the removal of vegetation leads to a decrease in soil fertility, hampering further growth of any type of vegetation.

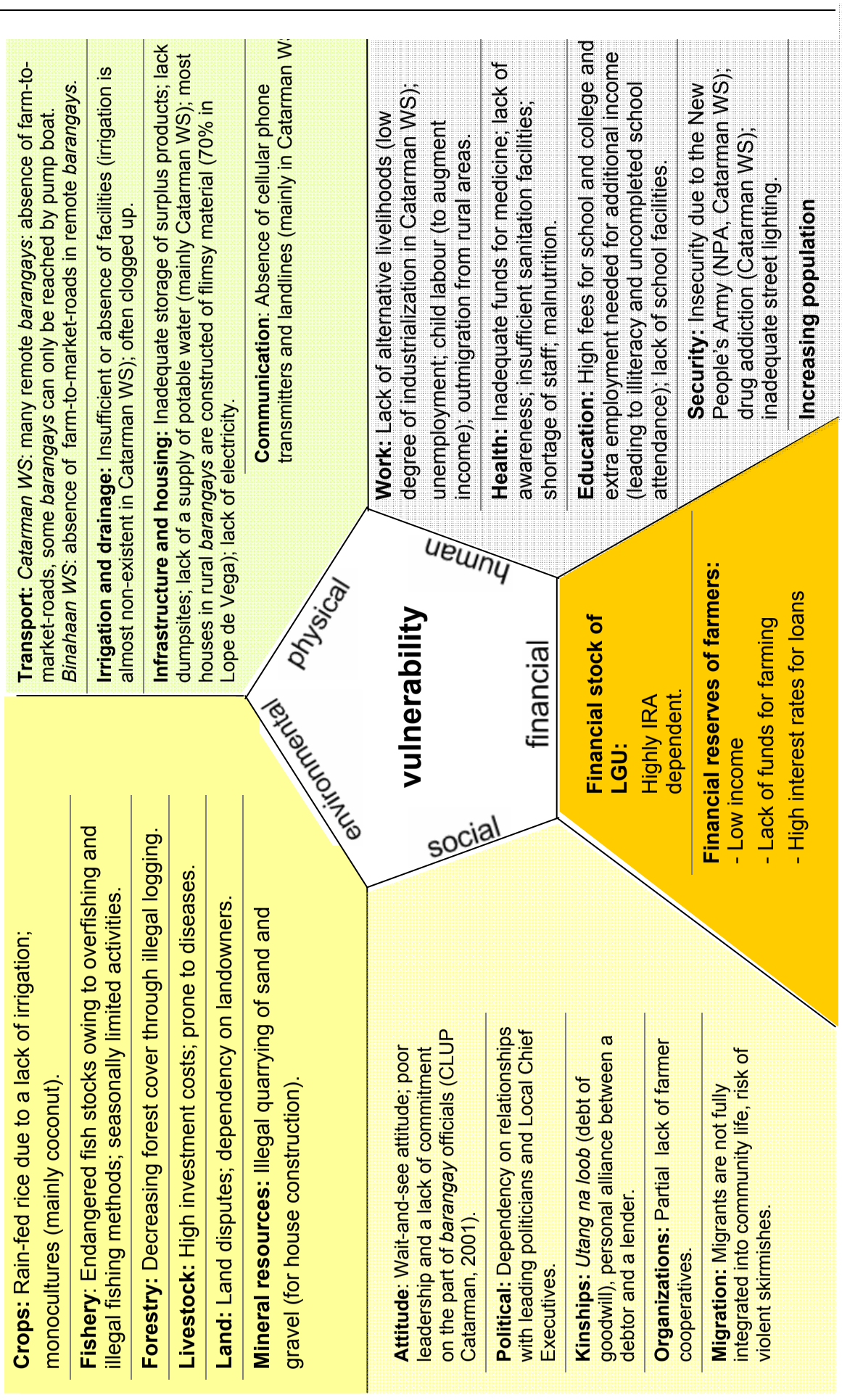


Figure 13: Overview of selected livelihood characteristics affecting people's vulnerability to disasters

Findings are based on interviews and group discussions in the respective barangays and on observations by the SLE team.

4.3 Hazards in the Investigated Watersheds

The Philippines are prone to a wide variety of hazards (see Chapter 1.1). However, not all areas are exposed to the same hazards or to the same intensity of extreme events. As the hydro-meteorological map suggests (see Figure 3), typhoons and accompanying rain pose one major natural threat to Region VIII. Disasters are not necessarily devastating events which are reported in the international media: in the research area small-scale floods occurring on a regular basis, destroying crops but having little effect on infrastructure, represent the principal threat to the development of the region.

4.3.1 Common Hazards

a) Floods

Both Binahaan and Catarman watersheds are primarily threatened by yearly occurring floods following heavy rains, often associated with typhoons[25]. The main period for typhoons and floods is September to January (Binahaan) and November to January (Catarman). The onset of the inundation is usually slow and it recedes after about three days (the worst cases were reported in Palo). An exception was the **flash flood of 1991** ("Ormoc flash flood") which hit the residents in all four municipalities unexpectedly and is still remembered for its devastating impact (loss of life and destroyed infrastructure such as bridges). Heavy inundations are reported once every decade. Floods often entail increased erosion and landslide risks. Sections of the river bank along the Catarman watershed are eroded and residents fear landslides along the highway.

Human interventions aggravating the flood threat: Man-made changes in the natural courses of rivers and creeks as well as clogged irrigation and drainage systems (mainly by waste) now cause heavy floods in areas that were previously not affected:

- **Binahaan river was redirected** as a flood control measure in the 1970s. The new river bed proved too small to accommodate the water of the three outlets of the former delta (GTZ: 2006). Previously flood-prone urban areas are now less affected, but other *barangays* in Palo and Tanauan have experienced heavy flooding ever since. Due to the strong current, heavy bank erosion occurs in the new river bed, whereas the old river mouths are closed through silting. A lack of

[25] The name Binahaan itself means literally "flooded land".

sediment deposition from the river generates erosion of coastal land in Tanauan. Palo, on the other hand, is gaining land due to sediment deposition.

- **A bridge under construction** was a partial cause of the flood devastating Catarman town in December 2006 when debris caught in the scaffolding clogged the river near its mouth. The flood surprised the residents as the water rose suddenly during the night. Damming effects caused by bridges (San Benito and Santa Elena) are also reported for the municipalities of Dagami/Binahaan.
- **Deforestation** in the uplands leads to a reduced capacity of soils to retain water and aggravates flood and erosion impacts.

Photo 3:The flood in Catarman watershed in December 2006 was heavier than usual, destroying houses along the river in *barangay* Abod Santos

b) Typhoons

Typhoons affect the region several times a year. Destruction is caused by the accompanying heavy rainfall and strong winds. Typhoons are most frequent from March to May and from September to December. No typhoon hit Region VIII in 2007. Generally, people remarked that the number of typhoons affecting Samar and Leyte had decreased over the past five years. It appears that they now pass further north over Luzon. An overview of recent typhoons hitting Region VIII can be found in Annex 10.

c) Less frequent disasters

- **Earthquakes:** The only earthquake that people could remember occurred in Samar in 1988 with a magnitude of 6.5 on the Richter Scale (pers. comm. of Lope de Vega). Nevertheless, a tectonic line bisects the island of Leyte with smaller tensional faults in Samar (PPFP 2000–2009) and therefore there is a danger of high magnitude earthquakes.
- **Droughts:** Many agricultural activities depend on rain. Droughts lasting for 7 or 8 months occurred in 1985 and 2000 in Binahaan and in 1997 in Catarman watershed.
- **Tsunamis and tidal waves:** There is a risk of tidal waves and tsunamis for low-lying *barangays*, mainly in the Eastern part of Leyte and Samar. However, over the last decades no tsunami has materialized. Nevertheless, in 2006 *barangays* in Catarman were warned of a potential tsunami which finally did not occur.

4.3.2 Disaster Effects on the Local Population

The following paragraphs are based on interviews and discussions in *barangays* and relate to the most common disasters, floods and typhoons. An overview of disaster effects connected to the five categories of the livelihood approach is given in Figure 14.

Generally speaking, disasters can impact people's lives and health, their property or their sources of income.

- Impact on the population (deaths, injuries, traumas). In both watersheds casualties are rare (since water rises slowly and floods are predictable), although an increase in disease has been observed.
- Impact on production assets and properties (houses, farm tools). Destruction of houses on a large scale is rare in the research area. Those most affected are the poor, who often see no alternative to building houses of flimsy material in disaster-prone areas (i.e. lowlands or close to rivers). Destruction of housing and infrastructure is caused by heavy floods with strong currents (e.g. Catarman WS in 2006), by flash floods or by typhoons.[26]
- Impact on people's sources of income. The main problem pertains to this category and is related to **destroyed crops** (rice, root crops, vegetables) or reduced yields

[26] Following the flood in December 2006, the PSWDO of Northern Samar reported no casualties. There were 5 injured persons and 115 buildings were destroyed in the two municipalities of Catarman Watershed. (Report of 12 January 2007).

(coconut). As a consequence, small-scale subsistence farmers are often forced to borrow money at high interest rates in order to purchase new seeds and surmount their food insecurity.

Photo 4: Floods destroying the crops are the main problem in Binahaan watershed

When assessing the time required for recovery, short-term and long-term disaster effects can be distinguished. In the short term people suffer from a reduced quality of life for brief periods (such as damage to infrastructure and food shortages). Longer-term impact is the consequence of destroyed livelihoods (crops). In the worst situations people suffer the loss of a total harvest which can constitute the bulk of their income for the year. Soil erosion caused by floods leads to a loss of fertile soil for agriculture. Courses of rivers can change, leading to a loss of arable land. Sediments transported by the rivers end up in the sea and lead to the smothering and eutrophication of coral reefs which in turn decreases fishery yields.

Table 4: Short-term and Long-term Disaster Effects in Binahaan and Catarman Watersheds

Short-term effects:	**Long-term effects:**
• Damage to houses • Hunger • Lack of sanitation and drinking water • Water-borne diseases • Limited transport opportunities	• Damage to crops (one of the main sources of livelihood, staple food) • Increasing indebtedness • Increasing poverty • Erosion of land

Coping strategies are manifold and influenced by, among other things, previous experience of disasters; existing community disaster management systems; location (distance from sources of external assistance) and social support systems. Existing and needed capacities for coping with disasters at *barangay* and municipal level are described in Chapter 6. Actors in DRM on local level are summarized in Annex 11.

Another relevant aspect for coping with disaster is how people perceive the risk, what role it plays in their daily lives and what importance they attribute to dealing with it. An overview for the perception of risk in the research area is provided in the following section.

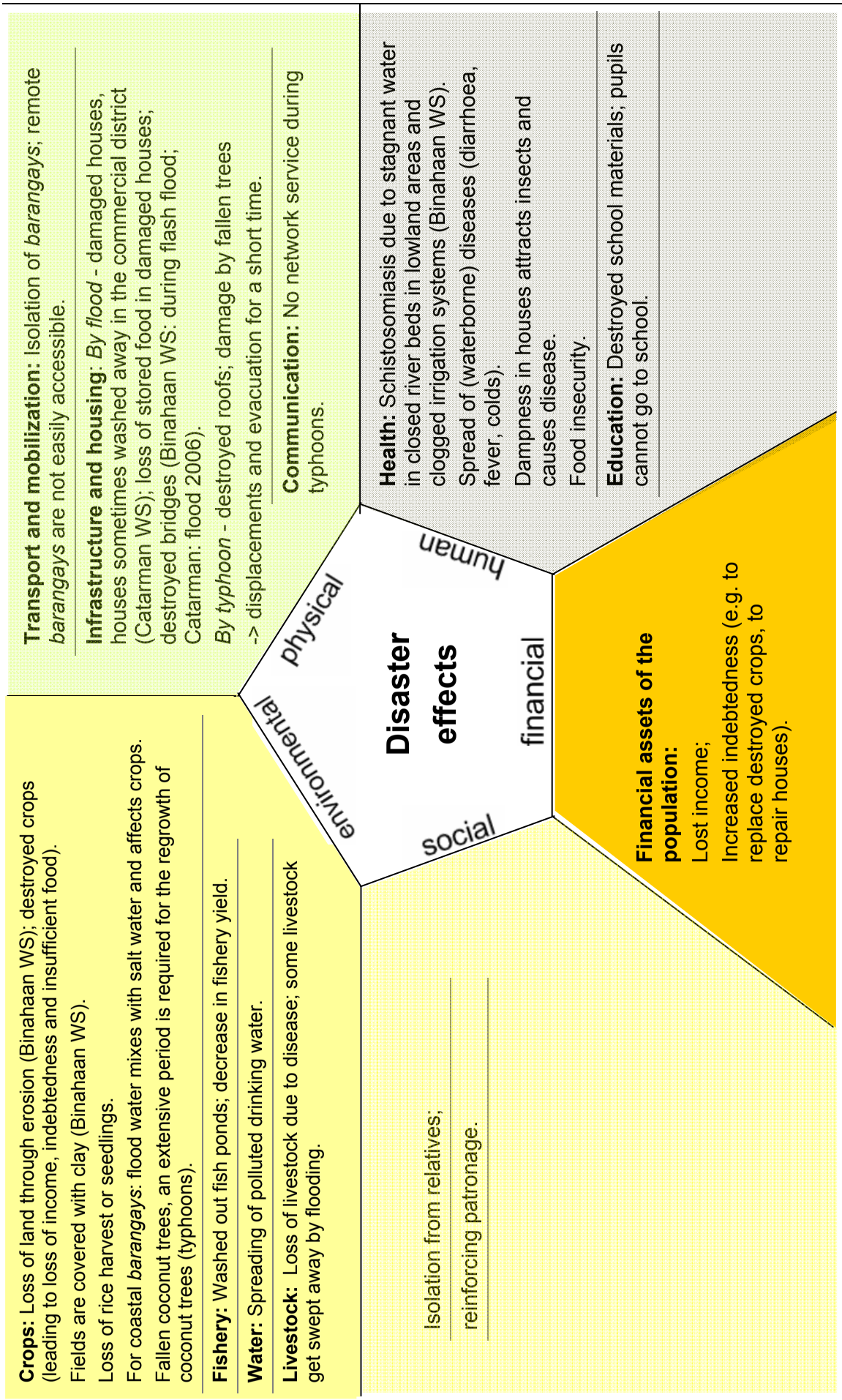


Figure 14: Overview of disaster effects based on interviews and focus group discussions in the investigated *barangays* and municipalities.

4.3.3 Perception of Risk of the Local Population

Understanding the perception of risk of the local population assists in comprehending their risk behaviour and in determining starting points for future activities. In addition, it can reveal how scientific knowledge (of potential hazards) and measures pursued by national and international agencies match or differ from their perception.

In a general problem ranking, disasters were not mentioned as one of the major problems. The population is well aware of the flood risk they are exposed to and can predict with a reasonable degree of accuracy when floods will occur. In particular, the following points should be highlighted:

- Disasters are not one of the most pressing issues in *barangays*. Health, education, employment, livelihood and security were usually ranked higher.
- Municipalities and *barangays* are aware that their localities are prone to flooding. However, the population is unfamiliar with other hazards such as tsunamis and landslides, mainly because they lack first-hand experience of such phenomena and also because they have no detailed hazard maps.
- In the case of continuous heavy rain in the watershed, people observe the slowly rising water level and the turbidity of the river and can thus anticipate when their locality will be affected. Evacuation ahead of this moment is rare since the fear of looting and plundering is widespread.
- Involvement in risk reduction varies from location to location with higher commitment in communities which are more affected. Generally speaking, the more heavily a community is affected by a disaster and the more recent is the incident, the more inhabitants are aware and willing to engage in disaster management.[27]
- Inundations are experienced as regular occurrences even though the level of devastation varies. People have become accustomed to floods and their negative impact on livelihoods. There is resignation and the feeling that “nothing can be done”.
- A claimed “lack of alternatives” (for livelihood and settlement) contributes to little proactive initiative concerning disaster prevention and mitigation. “They do not

[27] The municipality of Palo, which is the community most affected by floods in the Binahaan watershed, has a disaster preparedness plan in contrast to neighbouring municipalities or even the province. There is also more knowledge about new regulations concerning DRM (e.g. the usage of the Calamity Fund (see Chapter 3.1.2).

want to leave hazard-prone areas since it is their source of livelihood" (FGD Catarman mun.).

- Local Government Units at the provincial and municipal level criticize the alleged "wait-and-see-attitude" of *barangays*. The local population is reported to have a "dole out mentality", expecting someone to take care of their needs (patron/landlord, government, international agency).
- Social networks and the obligation to redistribute wealth within families and other social networks hinder individual savings and reduce individual coping capacities. However, they do lay a foundation for informal support systems that can be more direct and efficient than planned governmental initiatives. Despite strong social networks a lack of community cooperation at *barangay* level was reported.

The results of this assessment, namely the predictability of floods, raised doubts about one of the recent DRM activities in Binahaan watershed, the establishment of an **early-warning system** which is supposed to give alerts about 3 to 4 hours prior to flooding.

Photo 5: A river level gauge is a simple example for a manual early-warning system

However, besides issuing early warnings, the EWS consolidates a network of communities within a watershed and raises awareness within the population on disasters in general and thus presents an entry point for promoting comprehensive disaster risk management. Furthermore, early-warning systems may be useful for alerts in the case of flash floods (and help to prepare the population for big and potentially devastating events). Data collected through the EWS on rainfall patterns might, in addition, contribute to more accurate knowledge for the adaptation of planting and harvesting patterns.

4.4 Conclusion: Reducing Vulnerability

As highlighted in the sections above, casualties and damage to infrastructure are not the primary challenges during and after disasters in the research area. Instead, the impact on livelihoods, namely the destruction of crops poses the major problem.

Disaster risk management can focus on the vulnerability of the population or address the hazard (minimizing the probability of occurrence, preventing and mitigating effects). Technical measures to modify environmental processes have often proven insufficient, capital intensive and sometimes entail undesired side effects. Addressing vulnerability, on the other hand, is a time-consuming and complex process demanding a multi-dimensional approach and facing many, society inherent or even global obstacles.[28]

This research did not have the scope to undertake an in-depth study of alternative livelihoods and how social and political structures aggravate vulnerability. However, some aspects were raised during group discussions and individual interviews. They are reflected here to complement the recommendations for structural changes and capacity development in the succeeding chapters and as a reminder that disaster risk management is a complex issue demanding a multi-dimensional approach.

The main problem is the **destruction of the rice fields** which can affect the entire harvest. Most rice varieties are partly, heavily or totally damaged if they remain submerged for more than three days, particularly before the harvest. When freshly sown, the seedlings can easily be washed away. Small-scale farmers have to purchase new seeds but often lack the cash for procuring them and are thus forced to borrow money. Farmers and LGUs feel powerless to protect their crops.

The following paragraphs contain suggestions for further fields that could be investigated to address the above-mentioned problems:

Replacing the rice presently planted with submergence-tolerant varieties

Several varieties of flood-prone rice exist worldwide and research on improved rice cultivars through the use of breeding methods is ongoing. By 2006, the International Rice Research Institute (IRRI) in the Philippines had developed several varieties that were able **to tolerate submergence** for up to two weeks. In field experiments, the

[28] For a comprehensive model displaying the dimensions of vulnerability see the “Blaikie Model” in the Annex 1.1.

loss in yields for these new varieties during and after submergence were marginal (XU *et al*., 2006; MACKILL, 2006). [29]

Improved seed management

Farmers losing crops as a result of flood damage would benefit from readily available seeds. This issue could be addressed through the creation of local seed storage facilities. Furthermore, this presupposes that no hybrid varieties are introduced or spread as planned both in Northern Samar and in Leyte (pers. comm. PAO Northern Samar; ELA Palo). Hybrid rice has high yield potential but cannot be replanted. Farmers thus become dependent on nurseries for a permanent supply of first-generation seeds making them even more vulnerable.

Photo 6: Rice is the main crop on Leyte island (municipality Dagami)

[29] These seeds are not hybrid varieties. Seeds are given free of charge to the **Philippine Rice Research Institute** (PhilRice) in Muños, which is responsible for their distribution. Several additional factors also have to be considered: currents, depth of the water during submergence, duration of the submergence, and adaptation of the rice to specific local conditions (pers. comm. of Dr Sigrid Heuer, IRRI).

Diversification of crops and alternative livelihoods

Farmers depend on monocultures which makes them highly vulnerable to hazards. Diversification programmes are supported by the Department of Agriculture, the Department of Social Welfare and Development and NGOs, encompassing training for crafts and business, technical assistance for less common crops (swamp taro (*Cyrtosperma chamissionis*); vegetable gardens under coconut cultures, etc.), assistance for the cultivation of fruit trees or livestock raising. Despite the potential for diversification some problems do occur (FGD *barangays*):

- Lack of starting capital/insufficient small credit schemes;
- Slow amortization (e.g. fruit trees);
- Lack of storage and processing facilities which can endanger the harvests;
- Incomplete land reform which impedes the purchase of farm animals[30] even though suitable idle land is available;
- Rice land is often unsuitable for other crops (waterlogged soil).

Crop insurance

Crop insurance can help to financially mitigate crop damage. The Philippine Crop Insurance Company (PCIC), subsidized by the national government, offers a comprehensive national agricultural insurance programme (the principal product covered by insurance is rice) and addresses small-scale subsistence farmers with less than 7 ha of land. The standing crop is insured with prices varying according to the season. Currently in Region VIII less than 10 percent of the farmers are insured since most of them cannot afford the high premium rates. Farmers are not very familiar with Insurance schemes and negative experiences due to restricted applicability pose further obstacles to broader coverage.

The PCIC strives to get LGUs to cover a share of the premium in the form of a loan to encourage farmers to insure their fields (pers. comm. PCIC).

Watershed management

Watershed management encompasses technical interventions and environmental rehabilitation. Technical interventions such as the reopening of previously closed waterways would require a detailed analysis of the possible consequences on the

[30] Since the agrarian reform has not yet been completed in the area of the research, farmers would need the permission of landowners to change or alter production. Landowners are not always interested in giving their consent, since worked land is more likely to be redistributed to the farmers than idle land with no claimant.

environment and on the livelihood of the population. While most of the proposed actions can be isolated interventions, a comprehensive plan based on an environmental assessment should be the basis for an integrated watershed management strategy. This strategy should not be limited to individual municipalities.

- Irrigation and drainage systems need to be constructed and maintained. Extension of the irrigation system would allow up to three rice harvests a year (instead of one or two for non-irrigated fields).
- Reopening river arms of the former Binahaan delta near Tanauan would lead to a better water outlet. This would involve increased technical advice and cooperation from LGUs and national agencies (Department for Public Works and Highways (DPWH), National Irrigation Authority (NIA), and Department for Environment and Natural Resources (DENR)) to reduce flood impacts without increasing the risk for Tanauan.
- Dams, dykes, rip-raps, roads, bridges should be built taking extreme events into consideration. Since 2005 a new department order from the DPWH requires that every new road and bridge should be equipped with an adequate drainage system. Infrastructure should be improved to reduce the disaster risk (e.g. bridges in Dagami/Binahaan WS).
- Ongoing community-based forest management programmes should be strengthened and supported. Protected areas should be left idle, deforested areas reforested if not used for other purposes. An extension of agro-forestry on sloping land could reduce the risk of erosion while at the same time providing a basis for livelihood.[31]

Strengthening of livelihood is one measure to reduce vulnerability and thus disaster risk. Disaster risk management forgetting this aspect would have to be labelled incomplete and not comprehensive. How the need for strengthened livelihood can be reflected in local planning, and how capacity development can contribute to reduced risk, will be discussed in the following chapters.

[31] Agro-forestry combines agricultural and forestry technologies to create more integrated, diverse, productive and sustainable land-use systems. Woodland components are integrated with other crops and/or animals (World Agroforestry Centre, www.icraf.org)

5. Integration of Disaster Risk Management in Planning

Over recent years the strong linkages between development and disasters have increasingly been recognized by both international donors and developing countries. One of the principal strategic goals of the Hyogo Framework for Action, adopted at the World Conference for Disaster Reduction in Kobe, Japan, is for 'more effective integration of disaster risk considerations in sustainable development planning, policies and programming at all levels, with a special emphasis on disaster prevention, mitigation, preparedness and vulnerability reduction' (HYOGO 2005: 3). Successful disaster prevention and mitigation cannot be achieved without considering DRM in the planning process (GTZ 2004).[32] Hence, with DRM turning from short-term disaster preparedness, response and relief measures to long-term prevention and mitigation strategies, the integration of risk reduction measures in development planning is currently one of the most important activities of DRM.

There are generally two aspects to such integration, both of them equally important. Firstly, DRM can be regarded as a **cross-cutting issue** that needs to be considered in all planning sectors (e.g. environment, health, infrastructure, etc.). The aim is to plan with a DRM lens in hazard-prone areas in order to: (i) Avoid any building activities that do not immediately reduce the disaster risk in high-risk areas (land-use and spatial planning aspect, e.g. no construction of settlements); (ii) Ensure that projects do not exacerbate the disaster risk (e.g. bridges over rivers in flood-prone areas must be high enough to avoid clogging) and, (iii) Ensure that structures are able to withstand disasters (e.g. earthquake-proof buildings). Besides this cross-cutting aspect, certain DRM measures can be regarded as **stand-alone issues** in planning, since they do not have a function that extends beyond the DRM aspect. Included here are certain prevention measures such as dams, rip-raps or slope stabilization in landslide-prone areas and measures that prepare for the risk that remains even if prevention measures are in place (preparedness, relief, rehabilitation and recovery activities) (STIEBENS 2006: 23).

Another important function of development planning in a DRM context is reduction in the vulnerability of the local population. Socio-economic development measures such as the provision of employment opportunities through alternative livelihood programmes (diversification of agriculture, alternative businesses, distribution of

[32] See Introduction for more details.

livestock, provision of microfinance, etc.) contribute indirectly to an improved disaster risk management through alleviating poverty and buffering the negative impacts of future disasters (YODMANI 2001: 4,7).

In the following section, a brief overview is provided of structures and actors implicated in the development process in the Philippines, together with an analysis of the status quo of planning and DRM integration with a focus on the research area. The chapter concludes with a deliberation of potential mechanisms for integrating DRM into the planning process and of further initiatives that could support such an integration.

5.1 The Planning Process in the Philippines

The Philippine planning process is based on the Local Government Code (LGC) enacted in 1991. This Code was conceived to facilitate the decentralization of the administrative structure, and covers all aspects of local autonomy. It affirms that:

> "… the territorial and political subdivisions of the State shall enjoy genuine and meaningful local autonomy to enable them to attain their fullest development as self-reliant communities and make them more effective partners in the attainment of national goals." (LGC 1991:1).

Development planning activities were among the tasks that the local government units (LGUs) were empowered to take responsibility for.

In accordance with the LGC, each LGU would work with a comprehensive multi-sectoral development plan to be formulated by its Development Council and to be integrated within the Development Plans of the next higher level. A Development Council was created at all administrative levels to assist the corresponding Executive Council in setting the direction of economic and social development and coordinating development efforts (see Figure 15).

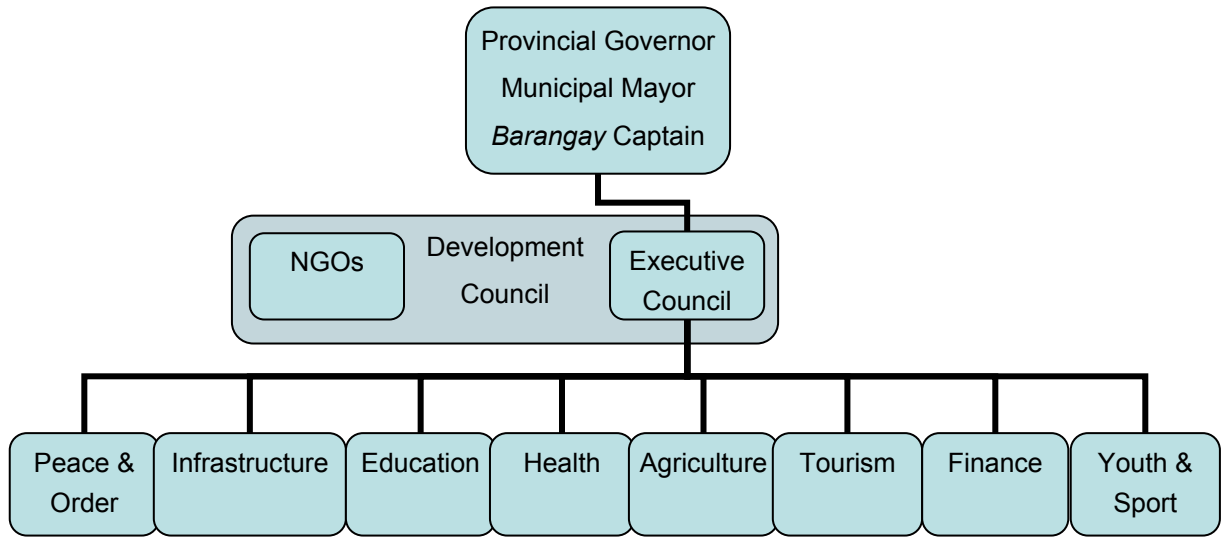


Figure 15: Structure of the Development Council

5.1.1 The Planning Process at the Different Administrative Levels

Given that the planning process in the Philippines is rather complex only a brief overview can be provided here that focusses on aspects necessary for understanding how disaster risk management could be integrated in this process[33]. Planning is carried out at national, regional and local or LGU level and comprises five key phases: planning, programming, budgeting, implementation and monitoring/evaluation (PPBIM).

Three types of planning can be identified: (i) **Land use planning** which involves the delineation by a government authority of the utilization to which land within its jurisdiction may be put. This physical planning process generates Physical Framework Plans (PFPs) which define zones for industrial, commercial, residential, recreational and other development. (ii) **Socio-economic planning** is reflected in the Development Plans (DPs), while (iii) **Investment planning** gives rise to Investment Plans (IPs). Table 1 provides an overview of the different structures involved in the planning process and the planning documents that are prepared at the different administrative levels.

In terms of vertical linkages, the planning system comprises simultaneous top-down and bottom-up processes. The national level provides so-called 'national thrusts' that

[33] A more detailed description of the planning process can be found in a recent baseline study on decentralized planning structures in the Philippines (NEDA/GTZ: 2003).

indicate development directions and guidelines for the local levels. These in turn identify programmes and projects that are then integrated into the higher-level Development Plans. In terms of horizontal linkages each administrative level of planning is expected to produce long-, medium- and short-term plans. Physical Framework Plans (PFPs) are long-term plans. The Medium-Term Development Plans (MTDPs) identify strategies for the implementation of the long-term plans and provide greater time-bound operational detail. Finally, the Annual Investment Plans (AIPs) are the short-term plans that enumerate projects that Local Government Units (LGUs) intend to implement for the year (NEDA/GTZ 2003).

Photo 7: **A flooded baranagay in Palo municipality, Binahaan watershed. Development planning needs to consider such flooding risks.**

Table 5: Overview of lead planners, plan documents and implementers at the different administrative levels

Adapted from: NEDA/GTZ 2003

Adminis-trative Level	Lead Planners	Plan Documents	Imple-menters
National	NEDA - National Economic Development Authority DILG - Department of the Interior and Local Government HLURB – Housing and Land Use Regulatory Board DBM - Department of Budget and Management	NPFP – National Physical Framework Plan MTPDP – Medium-Term Philippine Development Plan MTPIP – Medium-Term Public Investment Program	National Line Agencies
Regional	RDC – Regional Development Council NRO – NEDA Regional Office	RPFP – Regional Physical Framework Plan RDP – Regional Development Plan AIP – Annual Investment Plan	Regional Line Agencies
Provincial	PPDO – Provincial Planning and Development Officers PDC – Provincial Development Council	PPFP – Provincial Physical Framework Plan PDP – Provincial Development Plan AIP	Provincial Departments, Line agencies
Municipal	MDC – Municipal Development Councils MPDO – Municipal Planning and Development Officers	CLUP – Comprehensive Land Use Plan CDP – Comprehensive Development Plan ELA – Executive Legislative Agenda AIP	LGUs, Municipal Departments, Line Agencies
Barangay	BDC – *Barangay* Development Council	BDP – *Barangay* Development Plan AIP	*Barangay* Council

Since this study is principally concerned with the planning process at the LGU level, the planning documents at this level are introduced in more detail below:

Provincial Physical Framework Plan (PPFP)/Comprehensive Land Use Plan (CLUP): These plans establish the spatial policy valid for 15 to 25 years and define the physical pattern of growth. They precede the Comprehensive Development Plans (CDP) in order to guide prioritization of programmes in the CDP. PPFPs/CLUPs define the available supply of land resources and areas where development can and cannot take place (zoning

ordinances). In addition, the PPFP provides a detailed situation analysis of physical characteristics and of the social, environmental and economical state of the province. The responsibility for the drafting of these land-use plans lies with task groups called land-use committees that are part of the Development Councils.

Comprehensive Development Plan (CDP): CDPs delineate the sectoral policy for a six-year medium-term duration. They are multi-sectoral, comprising the following sectors: social, economic, environmental and natural resources, infrastructure, governance, administration. CLUPs define the specific applications for the available land resources and provide a convergence mechanism for integrating all existing topical and thematic plans such as the Disaster Management Plan, Local Poverty Reduction Plan, Sustainable Development Plan, Gender and Development Plan, Agriculture and Fisheries Management Plan, Local Tourism Plan.

Executive Legislative Agenda (ELA): ELAs compile sectoral programmes and projects for a 3-year period (this coincides with the term of mayor).

Annual Investment Plan (AIP): AIPs comprise a list of programmes, projects and activities by sector (including estimated project costs) that the LGUs envisage carrying out in the upcoming budget year (DILG 2007).

Assessing the planning process

The development planning process in its present form is complicated and time-consuming, necessitating the preparation of up to 28 different plans at LGU level[34] (pers.com. Allen Molen). In order to rationalize and harmonize this planning process a Joint Memorandum Circular (JMC) was issued in March 2007 by the national line agencies NEDA, DILG, DBM and DOF (JMC 2007). The JMC 2007 provides a policy framework that:

- furnishes guidelines on the harmonization of local planning, investment programming, revenue administration, and budgeting and expenditure management;
- reinforces the interface between national line agencies and the LGUs;
- strengthens coordination between the province and its component cities/municipalities, and
- clarifies and spells out responsibilities among the line agencies.

Future planning will be better synchronized in its structure and there will be only two principal planning documents (the Physical Framework Plans and the

[34] Plans range from the standard land use and local development plans to sectoral plans for coconut zone development, nutrition, culture and arts, food security, shelter, disaster risk management, etc.

Development Plans; ELAs and AIPs will also continue to exist but are not defined as 'plans'). Since this is a recent development, LGUs and national line agencies are at present harmonizing their established planning system with this new policy framework. The JMC roll-out will take place in November 2007, preparing the ground for a planning environment in 2008 that conforms with this new JMC planning process.

5.1.2 Line Agencies Involved in the Planning Process

A brief overview is provided below of the mandate and functions of NEDA and DILG, line agencies involved in development planning in the Philippines. This information is important for an understanding of the planning process and will assist later (Chapter 6) in identifying the appropriate agencies for capacity-building in relation to DRM integration in the planning process.

National Economic Development Authority (NEDA)

NEDA is the national planning body and is responsible for coordinating the formulation of socio-economic development plans, policies and programmes, including the formulation of investment programmes and the monitoring and evaluation of plan implementation. NEDA is also responsible for the integration at regional level of the plans provided by provinces and cities. The NEDA Board is comprised of a number of secretaries that represent the different sectors. NEDA also controls a number of inter-agency committees (e.g. Committee on Social Development). Under the jurisdiction of NEDA, the Legislative Executive Development Advisory Council is mandated to serve as a consultative and advisory body to the President on certain programmes and policies of the national economy and to study measures to ensure the integration of regional and provincial programmes into the national development plan.

Department of the Interior and Local Government (DILG)

The DILG is mandated to establish and formulate plans, policies and programmes to strengthen the technical, fiscal and administrative capacities of LGUs, thereby enhancing local autonomy. The DILG assists the President in the supervision of local government units; oversees and monitors the implementation of the Local Government Code of 1991, and enforces laws and regulations. It is also involved in accelerating the shift from reactive to proactive or anticipatory decision-making and governance. The DILG is mandated to formulate plans, policies and programmes, which will assist in handling local emergencies arising from natural and man-made disasters. While NEDA is responsible for the planning process at

national, regional and provincial level, DILG's responsibility focuses more on capacitating LGUs to draft their plans.

NEDA and DILG will coordinate with the Department of Budget and Management and the Department of Finance in order to provide sustained capacity-building programmes for LGUs.

Housing and Land Use Regulatory Board (HLURB)

The HLURB is a national government agency designated as the planning, regulatory and quasi-judicial body for land use development and real estate and housing regulation. It pursues activities to achieve rational land use through extending planning assistance to LGUs, reviewing and ratifying land-use plans, enforcing zoning regulations and updating and revising rules, guidelines and standards on land use. Hence, it is responsible for disaster mitigation measures such as hazard zoning and development policies. The HLURB sits on the Municipal Land Use Committees that draft Land Use Plans.

5.2 Current Status of DRM Integration into Development Planning

The basis for a successful integration of disaster risk management (DRM) into the planning process is a functioning development planning system. Therefore this section has two objectives: (i) to provide a brief overview of the general planning process at the different administrative levels and identify challenges and constraints, and (ii) to assess and evaluate if, and how, DRM is currently integrated into Development Plans. Based on this assessment potential mechanisms for mainstreaming DRM into development planning are suggested in Section 5.3.

In order to ensure universality, the national and regional levels were included in the assessment. However, focus was laid on the field research in the Binahaan and the Catarman watersheds. Here, the planning situation with regard to DRM was evaluated in 2 provinces, 6 municipalities and 14 *barangays*.[35]

5.2.1 National Level

Medium-Term Philippine Development Plan (MTPDP) 2004 to 2010

The main function of Development Plans at the national level is the provision of development guidelines, termed thrusts, that should serve as benchmarks for

[35] See Annex 12 for an overview of the planning documents, tools utilized and actors involved in the planning process in Leyte and Northern Samar.

planning at lower administrative levels. Hence the MTPDP was analysed focusing on the question of whether disaster prevention and preparedness aspects receive sufficient attention.

DRM is mentioned several times in the MTPDP: in Part 1 in relation to agribusiness, environment/natural resources and the financial sector, and in Part 3 in the chapter on 'responding to the basic needs of the poor':

- For agribusiness, emergency assistance and disaster mitigation, projects for calamity-stricken areas and a geohazard assessment programme are suggested (MTPDP 2004: 39).
- Under environment and natural resources, the Philippine's high vulnerability to natural disasters is acknowledged. It is recognized that landslides and floods are aggravated by a lack of forest cover (MTPDP 2004:47).
- A need is identified for geohazard mapping to guide Development Plans on settlements, industries and production areas, as well as relocation of existing settlements located in high-risk areas.[36] (MTPDP 2004: 47). Among the five major thrusts identified for environment and natural resources is the mitigation of natural disasters. Non-structural measures[37] under this thrust include:
  - Geohazard maps of the remaining 13 regions that have not been mapped to date.
  - Soil stability measures (e.g. reforestation and stabilization of river banks) for landslide-vulnerable areas.
  - Integration of disaster preparedness and management into planning at all levels of governance: periodic risk assessments and updating of land use policy based on these assessment; conducting disaster management orientation/training among LGU officials and concerned local bodies; institutionalization of community-based mechanisms for disaster management and promotion of the new bill on "Strengthening the Philippines Disaster Management Capability" (MTPDP 2004: 55).

Identified structural DRM measures include, among others, the provision of adequate flood control and drainage facilities; assuring that the conveyance capacities of

[36] It was stated that a mapping process has been initiated however this process is limited to highly disaster-prone regions such as Bicol, Eastern Visayas or Caraga.

[37] Disaster prevention and mitigation measures are identified as being either structural or non-structural. Structural measures are physical and include engineered as well as non-engineered structures (dams, dikes). Non-structural measures are land use planning, awareness raising and education, economic activities, societal measures, appropriate institutional arrangements, legislation, etc.).

waterways are maintained in optimum condition through riverbank protection and dredging/desilting; relocation of temporary settlers, and proper garbage disposal.

The financial sector envisions the implementation of a coordinated disaster recovery plan that would ensure undisrupted operations or timely reopening of financial sector institutions in the aftermath of a catastrophic event (MTPDP 2004: 108).

Under 'responding to the basic needs of the poor', vulnerable members of society, such as victims of disaster and calamities shall receive preferential access to social assistance. Furthermore, the delivery of humanitarian assistance will be improved. Training and education activities are foreseen, these would include the dissemination of readily understood information materials on disaster risks and protection options to citizens, and the integration of disaster risk reduction guidance in the school curriculum at the primary and secondary levels (MTPDP 2004:173).

In **conclusion**, the integration of DRM in the current MTPDP is comprehensive, with DRM constituting a main component and with a detailed identification of numerous prevention and preparedness measures that should be implemented. However, as will be demonstrated in the following paragraphs, these guidelines are insufficiently reflected at lower administrative levels, in particular at the municipal and *barangay* levels. Furthermore, there is insufficient appreciation of the importance of socio-economic development measures (e.g. alternative livelihoods) in reducing the vulnerability of the population to disasters.

5.2.2 Regional Level

Physical Framework Plans, Development Plans and Disaster Preparedness Plans

DRM is only marginally included in all the revised regional planning documents of Region VIII, reflecting the insufficient integration of the national guidelines. The **Regional Physical Framework Plan (RPFP)** contains 27 maps of which three geohazard maps identify disaster risk areas (volcanic and earthquake, landslide, flood and tsunami). The maps are insufficient in quality and resolution for use as risk maps. In addition, the RPFP contains no further details or strategy based on these geohazard maps (RPFP 2004).

In the **Regional Development Plan (RDP)**, some useful information with regard to disaster risk management is provided in Chapter 1, where several areas of the region are described as being susceptible to flash floods due to a decrease in forest cover under the 40 percent acceptable level (RDP 2004: 13). In order to improve the future situation, the suggested strategy on environment and natural resources envisions: reforestation and rehabilitation of denuded watersheds; plantation of fruit-bearing

trees that are capable of retaining groundwater, and the implementation of forest resources management (RDP 2004: 29).

This issue is also referred to in the **Regional Development Investment Programme (RDIP)** that proposes different forest management programmes for the protection, conservation, development and management of forest resources. These programmes would be supplemented by soil conservation and watershed management for the production and protection of water-based resources as well as erosion and flood control measures (RDIP 2005).

In **conclusion**, DRM at the regional level plays only a marginal role. The linkage between environmental degradation and disasters is partially acknowledged, but other disaster prevention measures are not considered.

5.2.3 Provincial Level

Physical Framework Plans and Development Plans

Both provinces have a ten-year Provincial Physical Framework Plan (PPFP) whose spatial directions and thrusts will be considered in the Provincial Development Plans (PDPs). The PPFP policy guidelines become effective only when the LGUs adopt them and make them part of their statutory plans, as the province itself does not have the statutory land use planning powers that the municipalities have (PPFP 2000: 90).

Leyte Province

With regard to the overall planning process, the PPFP for Leyte province begins by outlining a development strategy based on physical characteristics, and a socio-economic and environmental evaluation of the province combined with a strength, weakness, opportunity and threat analysis (SWOT analysis). Such a SWOT analysis is a prominent and powerful tool in planning, since appropriate development strategies can be determined according to the identified strengths and weaknesses and taking into account the opportunities and threats. The PPFP was formulated by the Provincial Land Use Committee (PLUC) in consultation with NEDA, and approved by the Regional Land Use Committee (RLUC). Lower administrative levels were involved through the participation of municipal planning and development officers and *barangay* officials.

Considering the mainstreaming of DRM in the PPFP the SWOT analysis mentions disaster risks as threats. Leyte is declared to be prone to earthquakes and tidal waves, with floods presenting the greatest hazard to the province. In addition, forest denudation and soil erosion are identified as threats that should be tackled through reforestation and the protection of critical watersheds (PPFP 2000: 30, 31).

- Environmentally constrained areas, listed as a specific land-use category, include areas subject to flooding, seismic and volcanic hazards and coastal areas along the Pacific Ocean (PPFP 2000: 62-66). A geohazard map (1:80,000) indicates areas prone to floods, earthquakes, coastal erosion and liquefaction, and shows the course of the fault line (PPFP 2000: 59-62). Binahaan watershed is identified as flood-prone.
- The section on infrastructure lists proposed infrastructure projects and mentions several flood control projects (two to be located in Dagami). The construction or improvement of dikes is envisioned in several municipalities, as is the extension of irrigation and drainage systems (PPFP 2000: 67-77; 147).
- It is acknowledged that flooding is exacerbated by non-functioning drainage facilities and that those need to be extended and maintained both in agricultural areas and in urban centres (PPFP 2000: 88; 141). The reduction of vulnerability to natural and man-made disasters is mentioned under the section on national land use policy, (PPFP 2000: 89).
- The PPFP affirms that environmentally critical areas will be regenerated and the remaining forest protected. Upland development projects such as community-based forest management and reforestation will be strengthened. Critical watershed areas will be rehabilitated and protected to mitigate soil erosion (PPFP 2000: 92-93).
- The increasing expansion of urban centres into protected and environmentally-constrained areas is recognized and it is affirmed that **'**Protected land, prime agricultural land and environmentally-constrained areas need to be identified in the CLUPs and should not be used for intensive building development purposes.' (PPFP 2000: 110-112).
- Intensive crop diversification with fruit trees and forest trees will be extended, especially for the areas subject to extended flooding[38]. (PPFP 2000: 131)
- Given that DRM receives little attention in the Regional Physical Framework Plan that should provide the guidelines for the PPFP, it is surprising that various DRM aspects feature in the PPFP. The classification of hazard-prone areas as 'environmentally constrained' and as areas that should not be built-up is useful in the DRM context. Such recommendations should prevent the development of infrastructure and settlements in areas at risk, hence contributing to disaster prevention. The classification is, however, based on a rudimentary geohazard

[38] Including the four municipalities of the research area: Dagami, Palo, Tanauan and Pastrana.

map that lacks scientific validation. This could be dangerous if hazard-prone areas are not recognized as such and could hamper development in cases where the actual risk is lower than that indicated in the maps. Furthermore, it remained unclear whether the recommendation to avoid building in 'environmentally-constrained areas' is supported by respective legislation and if so, how such legislation is enforced.

Northern Samar Province

The Provincial Physical Framework Plan (PPFP) 2004-2013 of Northern Samar presents a detailed analysis of the prevailing socio-economic and physical situation and contains the goals and objectives of the province. Strategies for further development are divided into the three components of settlement, land use and infrastructure. Although in some places it lacks a comprehensive discussion of the development strategy, it comes up with detailed programmes and projects including implementation time, costs and responsibilities.

The PPFP was prepared with the participation of the Provincial Management Team (PMT) and Technical Working Groups (TWGs) and was supported by the DILG and the HLURB. Stakeholder comments and suggestions were taken into account through local public consultations.

- Disaster-related issues are mentioned in the PPFP in the situation analysis and infrastructure chapters. It is reported that Northern Samar is prone to natural hazards such as tropical typhoons and storm surges due to its exposure to the open ocean. Severe soil erosion is attributed to the violent rains accompanying typhoons.
- Environmentally-constrained land is classified in the four categories of natural hazard, active fault lines, coastal zones and Network for Protected Agricultural Areas or Network of Areas for Agricultural Development (NPAA/NAAD)[39].
- A protection land map (1:500,000) highlights restricted agriculture, swamps, tsunami hazard and severe soil erosion areas (PPFP 2003: II 44, 46).
- Flood control is equated with irrigation and stated to be insufficient (only 21 percent of land is irrigated, of which only 50 percent of irrigation is functional).
- A map of existing infrastructure in the province (1:500,000) identifies 14 flood control devices located all over the province but the information contained in the map is not elaborated by supporting written information (PPFP 2003: II 36, 37).

[39] NPAA/NAAD refer to agricultural land protected against any form of irreversible conversion, including, among others, all productive land in low calamity risk areas.

- Although not mentioned and discussed in the development strategy of the PPFP, various disaster risk management measures are included in the final programme component:
- As many as 24 flood control and/or drainage projects are listed that should assist in reducing danger to lives and property and implementation time; anticipated benefits and costs are specified (PPFP 2003).
- In **conclusion**, DRM features in the provincial land use planning of Northern Samar province, but its integration could be improved. Maps are of insufficient quality and are therefore not a good basis for planning. Apart from specifying the hazards occurring in the province, no interrelationship with environmental depletion is identified. The 24 flood control and/or drainage projects that are listed are useful and ambitious, although at present they still have not been implemented.

5.2.4 Municipal and *Barangay* Level

Comprehensive Land Use Plans, Comprehensive Development Plans, Disaster Preparedness Plans

The general planning situation of municipalities and *barangays* is analysed below, followed by an assessment of the integration of DRM in the planning process in the two provinces.

Long-term municipal development planning is based on **Comprehensive Land Use Plans** (CLUPs) that were provided by five out of six municipalities. The evaluated CLUPs contain an overview of the actual land use situation and incorporate development goals and objectives described by sector and based on the needs of the municipality. One of the six municipalities supplemented its long-term planning with an Executive Legislative Agenda (ELA) which defines three-year projects based on major development thrusts and priorities of the present administration. The reviewed Annual Investment Plans (AIPs) range from one page tables that simply list projects to comprehensive documents including practical visions and strategic directions.

The municipal planning process is the responsibility of the municipal development council (MDC), in which different sectors of administration participate as well as *barangay* captains and various NGOs. A key individual in the process is the municipal planning and development officer (MPDO). Assistance from the line agencies NEDA, DILG or HLURB was provided in three municipalities.

The plans were formulated partially on the basis of a number of planning tools[40], but the data basis for planning was insufficiently comprehensive and not up to date, and appropriate maps were often lacking.

It was widely stated that the implementation of planning activities at municipal level was hampered by a limited availability of funds. As a consequence, projects were prioritized on the basis of budget considerations, rather than on development objectives. The limited planning capacities of the *barangays* make bottom-up planning difficult (pers. comm. MPDOs).

At **barangay level**, out of the 14 *barangays* investigated only 10 could produce an AIP. The AIPs include mainly small annual projects and are oriented towards the basic needs of the *barangay* population.[41] Although projects are listed in different development categories such as socio-economic, health, environmental and educational, they do not follow identified long-term development objectives. Long-term (3 to 5 years) Development Plans exist in only 2 out of the 14 *barangays*. The planning process at *barangay* level is characterized by the absence of data or tools apart from some basic maps of the *barangay* territory. Two exceptional cases were found in Northern Samar, where the NGO Plan Philippines provided planning workshops, and a vulnerability analysis was conducted by a *barangay* health worker. Due to limited financial and personnel capacities, planning activities at *barangay* level were limited, with planning activities focussing on short-term projects.

Following this general assessment of the planning situation, plans in the research area were reviewed from the aspect of DRM integration.

Municipalities and *Barangays* of Leyte Province

At municipal level, all of the reviewed AIPs and the two reviewed ELAs of Palo mentioned DRM measures (Table 8). By far the most comprehensive inclusion of DRM was found in the ELAs of Palo, including a variety of prevention as well as preparedness measures. The AIP 2007 of Palo, on the contrary, had a strong focus on preparedness, with no mention of prevention measures. It covered the last year of the ELA for 2005 to 2007 and it was apparent that none of the prevention measures had yet been implemented (pers. comm. MPDO). Palo's ELA for 2008 to 2010 identifies inactive *barangay* disaster management teams as one of the 15 priority issues and has as an objective to activate and operationalize all *Barangay* Disaster

[40] The following planning tools were used: Community Based Monitoring System (CBMS), Land Use Based *Barangay* Development Planning (LUBBDP) and the Local Government Performance Monitoring System (LGPMS).

[41] The AIPs are formulated by the *barangay* council, in some cases with support from the municipality. Finalized AIPs have to be approved by the municipalities.

Coordination Councils (BDCCs) through provision of training and equipment and the establishment of a municipal operation and evacuation centre. Furthermore, the lack of mainstreaming of disaster risk reduction to LGU development priorities is identified as one of the concerns. It is interesting to note that flood control projects, that were mentioned in the ELA for 2005 to 2007 but were not implemented, do not reappear in the new ELA. Hence, there is no guarantee that projects cited in planning documents will be tackled or will be incorporated into the new planning term if they have not yet been implemented.

The AIPs of Tanauan and Pastrana only mentioned prevention measures that focussed on drainage construction. Flood control and shore protection projects listed in the AIP of Tanauan were not further elaborated. Neither project seemed to be near to implementation. None of the AIPs mentioned measures dealing with natural resource management such as reforestation or watershed management. At *barangay level*, only one AIP (consisting of a one-page table) was reviewed for Balud and it did not mention DRM.

Photo 8: **A hazard map is drawn as part of a vulnerability analysis in barangay Cabarasan Guti, Binahaan watershed.**

Municipalities and *barangays* of Northern Samar Province

In the Province of Northern Samar, two Comprehensive Land Use Plans (CLUPs) of two municipalities and four Annual Investment Plans were reviewed (see Table 6).

In the CLUP of Catarman municipality, typhoons, floods, minor landslides and erosions are identified as natural hazards. The CLUP also includes an erosion-potential map and a list of typhoons which had occurred over the past eight years. However, there are no further guidelines given of how to reduce the high erosion potential through environmental measures. It is acknowledged that floods occur due to heavy rain and insufficient drainage systems. Sea walls, river controls and drainage systems are to be provided, but the project information is not specific in terms of location, time and cost.

The CLUP of Lope de Vega municipality also acknowledges that the municipality is prone to hazards, especially with regard to floods. Different prevention activities are planned such as tree planting along all *barangay* roads and improved housing facilities. It should be highlighted that the CLUP of Lope de Vega is the only analysed spatial plan that puts forward preparedness measures by the assigning of responsibilities for disaster relief coordination.

DRM measures featured only in the AIP of Somoge *barangay*. The *barangay* plans for a drainage system to reduce the water level in times of flood and supports flood control through tree planting along the river.

In total, the integration of DRM-related projects can be described as insufficient. Even though some DRM measures are planned in the long-term spatial plans they do not appear in the AIP and lack implementation. The positive example of Somoge *barangay* shows that it is possible to integrate disaster prevention measures even at *barangay* level when DRM is high on the agenda, which is not the case in the other locations.

Table 6: Current Status of DRM Integration in Development Planning at LGU Level in Leyte and Northern Samar Province

LGU	Plans	Prevention	Preparedness
PROVINCE			
Leyte	PPFP 2000 to 2009	• Environmentally constrained areas classified • Flood control projects • Reforestation • Crop diversification	None

Northern Samar	PPFP 2004 to 2013	• Environmentally constrained land is classified • Protection land map • Infrastructure map indicates 14 flood control devices • 24 flood control and/or drainage projects are planned	None
MUNICIPALITIES			
Palo	ELA 2008 to 2010	Governance and Administrative Concerns: • Mainstream DRM to all LGU programmes, projects and activities Environmental and Natural Resources Development: • Unclogging of existing drainage and waterways • Proper construction of drainage projects • Master drainage plan for entire municipality	Peace and Security Management: • Equip the MDCC Operations Centre • Strengthening of MDCC (training, drills) • Ready supplies for calamities Economic services: • Ready allocation for construction and rehabilitation
	ELA 2005 to 2007	Infrastructure Development: • Flood control programme • Reopening of Binahaan River • Comprehensive drainage Environment/Natural Resources: • Management programmes for forest, water, waste, land	Social Development: • Disaster preparedness programme (emergency medical and rescue teams)
	AIP 2008	General Public Services: • Disaster Risk Reduction mainstreamed to LGU development programmes, projects and activities • Maintenance of municipal drainage system	Social Services: • Relief, rehabilitation and rescue activities Economic Services: • Reconstruction and rehabilitation after calamities
	AIP 2007	None	From Calamity Fund: • Purchase equipment for MDCC • Aid to *barangays* before, during, & after disaster

Tanauan	AIP 2007	Infrastructure: • Development of drainage system • Flood control project • Shore protection project	None
Pastrana	AIP	• Construction of concrete drainage	None
Catarman	AIP 2007	None	None
	CLUP 2001 to 2010	• Erosion potential map • Flood control projects	None
Lope de Vega	CLUP	Social welfare system: • Educate population in disaster mitigation & control Infrastructure: • Tree planting along all *barangay* roads for erosion prevention • Improving housing	Social welfare system: • Disaster relief programme
BARANGAYS[42]			
Balud	AIP 2006	None	None
Abad Santos	AIP 2007	None	None
Somoge	AIP 2007	• River control through tree planting • Drainage system	None
Poblacion Lope d. V.	AIP 2007	None	None

5.2.5 Disaster Preparedness Plans[43]

Disaster Preparedness Plans (DPP) should be drafted at all administrative levels by the respective disaster coordination council (DCC).[44] They should include all the necessary tasks to be undertaken by the DCC before (preparedness), during and after a disaster (response, rehabilitation) occurs.

However, in the research area only three DPPs could be obtained, mainly at higher LGU levels (one DPP at provincial level, two DPPs at municipal level). No DPPs were reviewed for the investigated *barangays*. Two *barangays* indicated that they had drafted a DPP, but failed to produce the document.

[42] Out of all 14 *Barangays* only 4 provided an AIP for review.

[43] For further information see Annex 15

[44] See Chapter 3.1.1.

At present Region VIII still does not have a **Regional Disaster Preparedness Plan (RDPP)**. Given that the region is threatened by a number of natural hazards such as typhoons, floods, landslides, earthquakes and volcanic eruptions the current integration of DRM into planning documents is insufficient.

Leyte Province

During the review of Leyte Province, only the **DPP for Palo municipality** (2006 to 2009) could be obtained. This plan consisted of tables listing pre-emergency, emergency and post-emergency activities. Activities were assigned to the following areas: planning and operations; intelligence and disaster; resources and finance; community and warning; public information and education; rescue and evacuation; food supply and transportation; relief and rehabilitation; health and sanitation, and engineering and shelter. For each activity, the responsible agency/person is mentioned, as well as the time frame, resources needed and budgetary requirements. Activities are scheduled for the municipality and for the *barangays* and are to be undertaken principally by the MDCC, BDCC, MSWDO with support from the LGU. In terms of financial resources only a few of the scheduled activities were to be financed from the Calamity Fund, with the remaining finances coming from the development fund. In terms of disaster preparedness and response the plan is fairly comprehensive and sufficiently detailed. However, it does not contain any long-term prevention/mitigation measures, but this is well beyond the scope of such plans.

Northern Samar Province

In Northern Samar, Disaster Preparedness Plans exist only at provincial and municipal (Catarman) levels.

The **Northern Samar Provincial Calamities and Disaster Preparedness Plan 2007** consists of seven chapters covering situation analysis, general and specific objectives, organizational structures, task and functions, channels of communication, and reporting and coordinating instructions. The implementing office is the Provincial Disaster Management Unit (PDMU); the tasks of this unit comprise pre-, during and post-disaster operations.

The plan is comprehensive, especially in terms of mandating the responsibilities for all PDMU members. The current activities of the PDMU focus mainly on preparedness. Long-term prevention and mitigation measures may be included in the seminars for *barangays* offered by the PDMU.

At lower administrative levels, the **Disaster Preparedness Plan of Catarman Municipality for 2006** is the only one that exists. The declared aim of the Catarman DPP is to reduce the effects of disasters, minimize the loss of lives and properties and mitigate social disruption. The objectives are incorporated into an

annual work plan, identifying target areas, time frames, costs and implementing agencies. Activities are all funded under the 5 percent Calamity Fund. The plan is comprehensive in terms of disaster preparedness and response. It should be highlighted that it defines necessary steps to be taken in pre-emergency, emergency and post-emergency cases by considering three different scenarios for typhoons and floods, fires and tsunamis.

5.2.6 Challenges and Obstacles for DRM Integration in Planning

During workshops with planners from provincial and municipal levels in Leyte and Northern Samar, a number of obstacles were identified that would need to be overcome in order to facilitate the integration of DRM into the planning processes:

- Lack of awareness of the importance of the DRM aspect in planning.
- Lack of administrative and technical knowledge on how to integrate DRM in the planning process.
- Planners are currently not obliged to integrate DRM into the planning process (no legislative or policy guidelines as yet).
- Lack of strong political will to promote the integration of DRM.
- Shortage of Disaster Preparedness Plans that identify required prevention or preparedness measures and if they do exist, they are rarely integrated into Development Plans.
- Insufficient knowledge about the nature of disasters and the effects of calamities at *barangay* level.
- Lack of coordination between planners and Disaster Coordination Councils within and between administrative levels (often the personnel responsible for planning are not part of the DCC and the Municipal Land Use Committee lacks the participation of the DCC).
- People are often not aware of the existence of the Joint Memorandum Circular of 2003 that appropriates 30 percent of the Calamity Fund for disaster preparedness measures (See Section 3.1.2) and therefore it is frequently not applied, which leads to planners assuming that there are no funds for disaster preparedness measures.
- Weak accountability of Local Chief Executives with regard to damage caused by disasters.
- Lack of appropriate maps to serve as the basis for integrating DRM into the planning process:

  - Lack of hazard maps with a scale which is appropriate for planning (mostly 1:50,000 but 1:10,000 is needed);
  - Lack of risk maps (a combination of hazard and vulnerability maps), and lack of knowledge and capacities to collect data on the vulnerability of the population.
- Often short-term infrastructure projects, that can be implemented during the three-year election term, are favoured as opposed to long-term projects since they show quick results and increase the popularity of politicians (e.g. street lights, waiting shelters at bus stops).

5.2.7 Evaluation of the Planning Process and DRM-Integration

The Local Development Code (LDC) was a milestone in development planning in the Philippines, establishing planning institutions and offices at all levels. However, decentralization has materialized mainly in administration and not so much in local policies, which are still very much determined by the central government. Furthermore, the process is incomplete in terms of fiscal decentralization, leading to the creation of new institutions that lack the funds to fulfil their mandates. In particular, there is only limited fiscal autonomy at lower administrative levels, which leads to municipalities and *barangays* being highly dependent on the Internal Revenue Allotment (IRA) (SPAHN 2006: 1).

The **Joint Memorandum Circular** 2007 is a long overdue attempt at improving the planning process by harmonizing different plans and reducing the array of sector-specific plans. The importance of the JMC for the integration of disaster risk management in the planning process is twofold: (i) The present Disaster Preparedness Plans will be fully integrated into the Development Plans, and (ii) the JMC roll-out provides an opportunity for incorporating guidelines for the integration of DRM into development planning. GTZ in Region VIII is currently actively lobbying for such an incorporation through attending planning workshops in the region (see best practice example in the Text Box). At the time of writing, however, this has not yet been implemented and planning is still based on numerous sectoral plans, making the process complex and complicated (pers. comm. GTZ).

Coordination between the different administrative levels is often not optimal and very person-dependent, despite its legal institutionalization. Top-down planning is predominant, as lower levels often fail to present their respective plans in time for consideration. Planning is further hampered by a high turnover of staff, due to the elections which occur every three years. Therefore, planning lacks continuity and reliability, especially with regard to the implementation of long-term plans. Political interests also lead to a prioritization of short-term projects that can be quickly

implemented during the electoral term. The successful implementation of plans is often impeded by widespread corruption (pers. comm. PPDOs, MPDOs).

Apart from these shortcomings, the planning situation at higher levels (national, regional, provincial) can be described as comprehensive and well established. However, it lacks enforcement capacities.

The general planning situation at national, regional and provincial level can be evaluated as comprehensive and well-established, but lacks enforcement mechanisms and capacities. The integration of DRM at **national level** is fairly comprehensive as a national thrust on DRM is incorporated in the MTPDP. However the need for DRM integration at all levels should be highlighted more vigorously, as should the linkage between disasters and development.

So far the **regional level** has not acknowledged the DRM-related guidelines established at the national level. The DRM thrust has not been passed down and integrated to the same extent. DRM is only marginally acknowledged, for example in recognizing the connection between forest cover and floods. However, apart from general forest management projects, specific environmental strategies and programmes that target disaster prevention are lacking.

At **provincial level**, DRM aspects are borne in mind in the Provincial Physical Framework Plan of **Leyte**, in particular with regard to flood-related aspects. Hazard-prone areas are classified as 'environmentally constrained' areas where no building activities should be permitted. However, these hazard-prone areas need to be better mapped. The plan acknowledges that disasters lead to livelihood problems and suggests crop diversification as a mitigation strategy for farmers. In the Physical Framework Plan of **Northern Samar** different disasters are identified, but are not linked to prospective strategies. DRM is referred to in connection with floods and irrigation and is appraised as being insufficient. The plan presents 24 flood-reduction infrastructure projects. Due to the initiative of the Provincial Disaster Management Unit, Northern Samar has drafted a comprehensive Disaster Preparedness Plan.

In general, planning at **municipal level** lacked a holistic approach and focussed more on annual planning than on a long-term strategy. Located between the provincial and *barangay* levels, municipal planning plays a key role in the integration of top-down and bottom-up processes. However, the municipalities visited were scarcely able to fulfil this task, due to shortcomings in coordination and communication. Furthermore, cooperation between the higher and lower levels is considerably influenced by political issues and only functional where there are identical political affiliations. The municipal planning and development council lacks staff and resources to fulfil its duties. The integration of DRM in the planning process

is dependent on the knowledge and initiative of the Local Chief Executive (LCE)[45] and the Municipal Planning and Development Officer (MPDO). Palo municipality, having a proactive and well-informed MPDO, demonstrated the most comprehensive integration of DRM in planning documents, whereas in many other municipalities DRM was not on the agenda. However, Palo is also an example for its lack of implementation of projects anchored in Development Plans. Land Use Plans in Northern Samar acknowledge disaster-related aspects, but do not translate these into comprehensive prevention strategies (apart from flood control projects). The existing Disaster Preparedness Plans of Palo and Catarman municipalites were comprehensive, but overlooked disaster prevention measures.

At *barangay* level the planning situation can be described as inadequate. This is partly due to insufficient finances to fund development projects and this is combined with limited planning skills and capacities. Planning activities are only tackled under the Annual Investment Plan (AIP) and DRM measures hardly feature in these plans. Furthermore, no Disaster Preparedness Plans exist.

To summarize, the extent of DRM integration decreases at the lower and more decentralized administrative levels. Integrated at national level in a fairly comprehensive way, the thrust is not mirrored at *barangay* level. A lack of adequate hazard and risk maps, that constitute the basis for integrating DRM aspects into planning, was apparent at all levels.

[45] Local Chief Executives are the *barangay* captain at *barangay* level, the mayor at municipal level and the governor at provincial level.

Text Box 4: Best Practice: Supporting the Integration of DRM in Development Planning – Workshop to Harmonize Planning Resources at the LGU Levels. Cebu City, August 2007

To facilitate the implementation of the JMC 2007, which aims at harmonizing local planning processes and assisting LGUs in their planning processes, a Workshop was held for the eight municipalities of Biliran (Region VIII). The workshop was organized by GTZ-Health and LogoFind and was part of a series of Local Development Strategic Planning Workshops. Participants from the municipalities included MPDCs (Municipal Planning and Development Councils), MHOs (Municipal Health Officers), MLGOOs (Municipal Local Government Operational Officers), Budget Officers and MSDWOs (Municipal Social Welfare and Development Officers). The Workshop was conducted by DILG, NEDA, POPCOM (Commission on Population), GTZ-Health and GTZ DRM (Allen Molen).

The goal of the Workshop was to enable the LGU planning teams and partners to work together in formulating local development strategies/local Development Plans that utilize and harmonize available planning tools. Specific objectives included: understanding the new JMC; the identification of strengths, weaknesses, opportunities and threats based on available data, and the formulation of strategies, programmes and projects that would lead to the realization of the LGU vision.

GTZ promoted the integration of DRM in the planning process and encouraged the LGUs to regard DRM not as a new aspect or guideline but to simply plan with a DRM lens. This can be partly achieved by addressing the identified weaknesses that should be seen as vulnerabilities in a DRM context and by building capacities. The following steps were proposed: 1) hazard assessment (based on geohazard maps that already exist for Biliran); 2) vulnerability assessment; 3) capacity assessment; 4) disaster risk analysis (with Steps 2 and 3 to be based on the IIRR manual (IIRR 2006). Furthermore, when considering the integration of DRM into planning, the following recommendations were provided:

- With regard to data collection, take into consideration the tools already available for the gathering and monitoring/assessment of data on performance and poverty;
- Incorporate DRM in Environmental Impact Assessments (EIAs);
- Develop a participatory method for rapid damage assessment;
- Establish a standard emergency response protocol and appropriate coordination procedures;
- Review the roles and functions of the existing Disaster Coordination Councils (DCCs);
- Update local hazard maps for identified high-risk areas in coordination with mandated institutions;
- Shift the mindset from response to risk reduction;
- Develop capacities in domains where lacunae have been identified.

Outcome of the Workshop: Of the seven municipalities that participated in the Workshop, five included DRM in their final conclusions. Projects and strategies for addressing DRM ranged from setting up a municipal task force, requesting disaster preparedness training from the OCD, revision of Disaster Preparedness Plans, to structural measures such as flood mitigation and reforestation.

5.3 Mechanisms for Integrating DRM into Planning

After providing an overview of the development planning process in the Philippines and analysing the current status of DRM in this process, the remainder of this chapter will be devoted to a discussion of potential mechanisms for integrating DRM into planning and will identify measures to facilitate this integration.

5.3.1 DRM Thrusts at the National Level

Currently DRM is one of the main national policy guidelines (thrusts). However, it should be ensured that this effort will be sustained beyond 2010, since the identification of DRM as a thrust at the national level increases the likelihood that DRM projects will be integrated at lower administrative levels. Furthermore, international donors rely on national guidelines to guide their interventions, hence the integration of DRM in the Medium-Term Philippine Development Plan will ensure international support in this area.

In addition to development planning, the national level is responsible for the provision of an institutional framework for DRM and the introduction of appropriate legislation and regulations. In this regard, the new Disaster Management Bill that has been pending for several years should be amended and ratified as quickly as possible. This is particularly important since a new legislative framework governing DRM activities is urgently required in order to assign appropriate responsibilities to new actors (See Section 6.1) and create fiscal incentives. In general, DRM necessitates improved cooperation between different ministries at the national level and needs to be considered in the national budget.

5.3.2 Entry Points for DRM in the Planning Process

Disaster risk management should be used as a lens when planning and should enter the planning process in two ways: through integration into Physical Framework Plans or Land Use Plans, and through integration into Development Plans. Based on designated high-, medium- and low-risk areas in land-use planning, the programmes, projects and activities included in the Development Plans will be adjusted in order to take the risks into account and mitigate them.

Integrating DRM into Physical Framework Plans and Land Use Plans

Physical Framework and Land Use Plans should include DRM as a cross-cutting issue since these Plans serve as a basis for Development Plans and Land Use Plans at lower administrative levels. Based on the reviewed Physical Framework Plans of Leyte and Northern Samar, it is suggested to integrate DRM in the following ways:

A holistic overview and full acknowledgement of the disaster risk of the region/province/municipality should be provided in a **situation analysis** based on the following data:

- **Geohazard maps** which identify areas that are prone to floods, typhoons, volcanic eruptions, earthquakes and landslides. These maps should be detailed and GIS-based and should differentiate high, medium and low hazard-prone areas (chapter covering natural and physical characteristics).
- An **economic analysis** including maps illustrating the different economic welfare status of settlement areas and households (chapter covering the economy).
- A **classification of housing units** according to building materials, reflecting their capacity to withstand disasters. At lower levels, data should be transferred onto maps that highlight settlements according to their high, medium and low vulnerability to disasters (chapter covering settlements or social services/housing).
- A flood-related **infrastructure map** that indicates drainage canals, sea walls, flood control devices, etc. and their condition at the time of the drafting of the plan. This map should differentiate between infrastructure with and without drainage systems. Irrigated land areas could be marked on the same map or could be shown on a separate watershed map depending on the respective scale (chapter covering infrastructure).
- An **agricultural analysis** interrelating land suitability with disaster-proneness, which would form the basis for specific classifications of agricultural land use including resistant crops (chapter covering land use).
- A consistent **environmental analysis** that assesses the interrelationship between environmental degradation (deforestation, mangrove degradation) and disaster risks (chapter covering the environment).
- A **vulnerability analysis** covering physical, economic, social and environmental conditions based on the above-mentioned analysis.
- A **risk analysis** including risk maps that combine the vulnerability analysis with the hazard maps, and which furnishes a classification of high, medium and low risk areas.

The information contained in the situation analysis would provide the foundation for the actual development concept and strategy of the Physical Framework Plan or CLUP. DRM-related development strategies (as listed below) should be included in all components of the Physical Framework Plan in order to reduce risks and minimize development setbacks.

Photo 9: **Nipa huts next to Catarman river are in danger when the next flood comes**

Environment-related DRM should include:

- Forest management and reforestation, especially in upstream and sloping areas, to avoid landslides and reduce the occurrence of floods.
- Watershed management and river rehabilitation leading to sufficient natural river flood-planes and decreasing soil erosion in flood prone areas.
- Costal zone management and rehabilitation of mangrove swamps and coral reefs to reduce tidal wave and tsunami impacts.
- Protected areas for highly vulnerable ecosystems.

Infrastructure-related DRM should include:

- Strategies to increase the resilience of buildings and infrastructure in order to withstand the respective risks occurring in the location.
- Flood control systems such as dikes, dams, seawalls etc.
- Irrigation and drainage projects.

Land use-related DRM should include:

- Crop diversification and introduction of disaster-resistant crop varieties.
- Changes in land use that reduce disaster impacts (e.g. agro-forestry).
- Land use and development strategies based on the high, medium and low risk classifications given in the risk analysis leading to:
  - Protected areas where no development projects are permitted (high risk). This classification already exists, with such areas designated as 'environmentally-constrained areas', but the categorization is not based on accurate hazard maps and the 'no-building' guidelines are not enforced;
  - Development areas with restricted suitability and the provision that projects undergo a specific disaster impact assessment (medium risk);
  - Preferential development areas to establish development clusters for the province (low or no risk). (see Figure 16).

Settlement-related DRM should include:

- Settlement strategies based on the degree of risk indicated in the risk analysis:
  - Areas where no settlement is allowed (high risk).
  - Settlement areas that integrate strategies for risk prevention, mitigation and preparedness and which are continuously under surveillance (medium risk).
  - Prioritized settlement areas (low or no risk).
  - Designation of relocation sites for settlements in high risk areas if and when necessary.

Land use categorization from the DRM point of view is of fundamental importance since the aim of a physical framework plan/CLUP is to translate development goals into a spatial plan that will guide future developments.

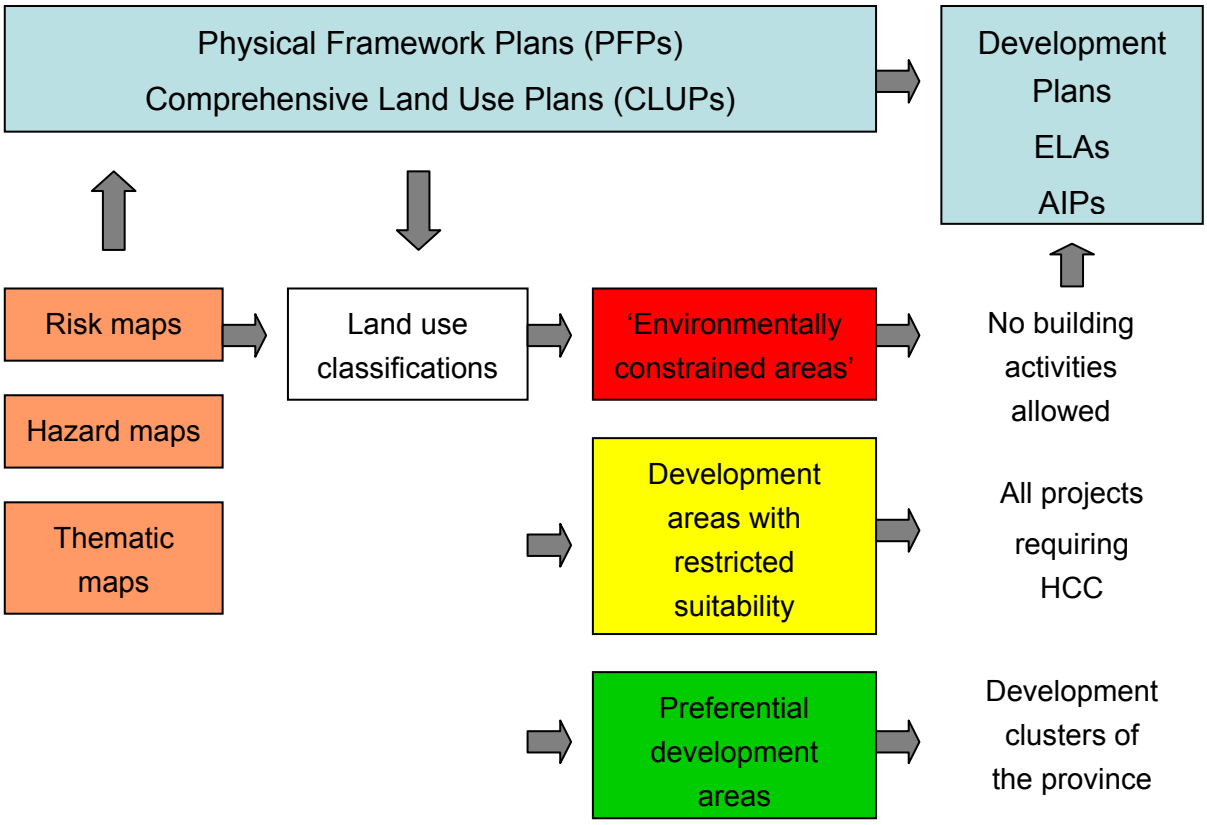


Figure 16: Land-use Classifications Based on Risk and Hazard Maps

These classifications should be incorporated in the development guidelines in the Development Plans, Executive Legislative Agendas (ELAs) and Annual Investment Programmes (AIPs).

Integrating DRM into Development Plans

Since DRM is a **cross-cutting** issue, it should be taken into consideration in each sector of development planning. This consideration of DRM inputs would be based on the land classifications determined in the Physical Framework Plans (see previous paragraph) and on specific development guidelines to be drafted and linked to these classifications (see Figure 16).

A mechanism should be introduced which would oblige any governmental or private development activity in medium-risk areas to ensure that the impact of disasters is taken into account when planning and implementing a project. Such a mechanism – hereafter referred to as the "Hazard Compliance Certificate (HCC)" – should certify

that the project or activity avoids high-risk areas where possible, does not exacerbate disaster risk and is able to withstand subsequent disasters[46].

The assessment of a project should be undertaken by the respective line agencies (e.g. the DPWH for infrastructure, the DENR for reforestation and watershed management measures, the HLURB for housing etc.). The HCC should not only provide guidelines prior to the start of a project but should monitor the project's progress, from the DRM aspect, up to its completion. To enforce HCCs, penalties should exist and projects failing to obtain an HCC should be denied financial rehabilitation assistance in the case of a calamity.

Text Box 5: Ecological Impact Assessment (EIA)

EIAs are issued by the Environment Management Bureau (EMB). This system has been in existence since 1987 and was revised in 2003 (PD 1586 1987, DENR 2003).

It specifies that projects in 'environmentally critical areas', which includes all hazard-prone areas, require an Initial Environmental Examination (IEE). Part of this IEE is a description of predicted and assessed impacts and proposed mitigation measures. Furthermore, a description of the project surroundings is required including the physical environment and natural hazards (see Annex 14). The Mining and Geoscience Bureau (MGB) often supports this process. Theoretically, the Environmental Compliance Certificate (ECC) can recommend terminating a project or redesigning it in order to reduce negative impacts. Penalties are already in place for projects that do not adhere to ECC guidelines or fail to obtain an ECC.

The EMB office in Region VIII issues more than 100 ECCs annually, of which less than 10 get rejected. The office is understaffed and lacks resources such as vehicles. The ECC process lacks an effective enforcement mechanism and is prone to corruption with entrepreneurs of larger projects sometimes 'buying' their ECC.

There are two possible **options for institutionalizing HCCs**:

Option 1: The HCC could be incorporated into the already existing Environmental Impact Assessment (EIA) that culminates in the issuance of Environmental Compliance Certificates (ECCs) for Environmentally Critical Projects (ECPs) and currently operates under the responsibility of the Environmental Management Bureau (EMB) (see Text Box 4). The advantage of integrating the HCC into the ECC would be the opportunity of using a mechanism that is already institutionalized and building on already existing guidelines and procedures. The disadvantage, however, is that there is a danger of overburdening

[46] For example, a bridge in a flood-prone area should be located outside the area that is worst affected, should be erected high enough to prevent clogging underneath the bridge in the case of a flood and should be sufficiently strong to withstand damage or being swept away in the case of flooding.

the ECC mechanism that is currently primarily concerned with the environmental impacts of developments, and overburdening the already limited capacities of the EMB. Although the mechanism looks good on paper, it lacks adequate implementation.

Option 2: The Provincial Disaster Management Unit (PDMU), currently existing in Northern Samar but not in Leyte, could be given responsibility for the HCCs. Assuming they have a good understanding of disaster-related issues and receive the necessary financial and personnel resources, they would be in a better position to supervise and enforce HCCs. A disadvantage would be that bringing in another agency would further complicate the procedures for obtaining a permit for activities. Besides the question about how to institutionalize HCCs, it is important to highlight two additional concerns. Firstly, HCCs do require considerable expertise on how to design structures so that they are able to withstand disasters. Such specific knowledge may not yet exist among engineers. Secondly, infrastructure projects are especially prone to corruption. Even if, for instance, sufficient funds are available to build a road of good quality, what often occurs is that the construction company in charge misappropriates some of these funds and constructs a road of inferior quality. This is a particular concern in risk-prone areas, where disaster impacts can only be mitigated by constructing 'high-quality' structures. A possible mechanism for enforcement again could be to hold construction companies responsible should the structures fail to withstand a disaster and to reduce the amount of rehabilitation assistance provided for such structures.

As discussed in the introduction to this chapter, besides considering DRM as a cross-cutting issue in development planning measures for disaster preparedness (preparing for the risk that remains even if prevention measures are in place), prevention also needs to be considered in the Development Plans. Prevention and preparedness measures should be treated **separately** since they are funded from different sources.

Both measures should be documented in an Action Plan for Disaster Prevention in Preparedness (see Figure 17). Having an action plan as a separate document will ensure that DRM measures receive sufficient attention and can be planned recognizing the links between the different measures. The Action Plan will replace the current Disaster Preparedness Plans which have a strong focus on preparedness and response. In accordance with the Joint Memorandum Circular of 2007, the content of the Action Plan will be fully integrated into the Development Plans, Executive Legislative Agendas and Annual Investment Plans.

Action Plans should serve as the basis for the integration of prevention as well as preparedness measures into the respective sectors of development planning

(e.g. a dam for flood control would be planned under infrastructure development; reforestation and watershed management under environmental and natural resources; socio-economic measures that reduce the vulnerability of the population at risk would be planned under social or economic development, etc.). In terms of funding DRM measures, preparedness and response would be financed from the Calamity Fund (5 percent of the overall budget) and prevention measures from the Development Fund (20 percent of the overall budget) that is at the disposal of each LGU.

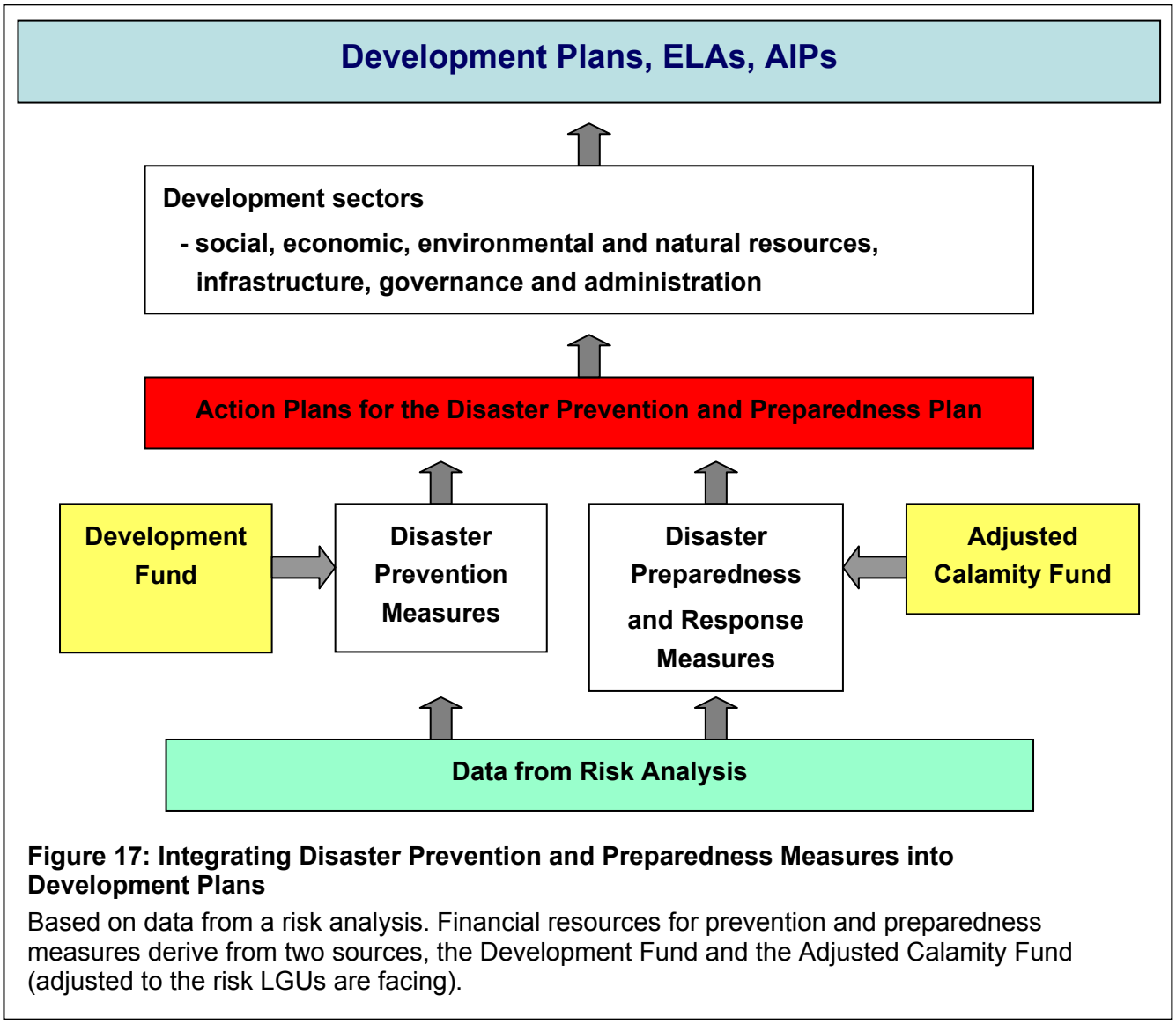


Figure 17: Integrating Disaster Prevention and Preparedness Measures into Development Plans

Based on data from a risk analysis. Financial resources for prevention and preparedness measures derive from two sources, the Development Fund and the Adjusted Calamity Fund (adjusted to the risk LGUs are facing).

A comprehensive risk analysis, carried out in all hazard-prone *barangays*, should be the basis for planning disaster prevention and preparedness measures. This risk analysis should be based on accurate hazard maps (see example in Annex 13) and should incorporate data stemming from a vulnerability analysis (VA). Some of the data required for the VA is already part of the Community-Based Monitoring System[47] (e.g. data on population characteristics, housing materials, water supply, health conditions). Additional disaster-related data, would need to be collected (e.g. types of disaster, frequency, extent, suggested potential mitigation measures, data on how the population is affected, how the community reacts in the case of a disaster, location of evacuation centre, modes of communication, early-warning systems, etc.). Such data collection is the responsibility of the municipality, but is time-consuming and might demand additional staff.

5.3.3 Incentives and Sources of Funding for DRM Measures

Currently one of the major problems connected with DRM is the lack of incentives for implementing prevention and mitigation measures. There are two reasons for this. On the one hand, funds for rescue and relief are often readily available, and relief operations often attract media attention, thereby providing good publicity for politicians (BANKHOFF 2003: 99; GILBERT, KREIMER 1999: 42). On the other hand, investing efforts and finances in prevention and mitigation measures will only pay dividends when the next disaster strikes. Even if the measures are properly implemented and may totally prevent a natural hazard from causing a calamity, the current political climate conditioning the ascribing of praise or disapproval makes it hard for politicians to justify expenditures on prevention. At present, there is a lack of incentives for DRM and the existing national system for the funding of disaster losses should be redesigned to provide strong fiscal incentives to LGUs for a more proactive risk management' (WB/NDCC 2003: 4).

In terms of revenue distribution the national internal revenue allotment (IRA) does not favour poorer (5th and 6th class) LGUs[48]. Such LGUs do, however, struggle to

[47] The monitoring system collects data in eight areas of concern – basic education, income, employment, health, nutrition, housing, peace and order, and also includes a ranking of community problems. The CBMS was developed in the Philippines in the early 1990s and is being institutionalized as the foremost local poverty monitoring tool in tracking the Philippine's achievements of the Millennium Development Goals (CAPONES 2007: 2-3). It is currently implemented in 29 provinces, 347 municipalities and 9,116 *barangays* and it is envisioned that the entire country will be covered by 2010 (CAPONES 2007: 4). However, municipalities criticize the CBMS data collection system as being costly, time-consuming and complex.

[48] LGUs receive a 40% share of the national internal revenue taxes. This internal revenue allotment (IRA) is allotted in the following manner: provinces 23%, cities 23%, municipalities 34% and *barangays* 20% (LGC 1991: 37). The share of each province, municipality or *barangay,* is determined

generate additional local revenues from local taxes or service charges and are therefore highly IRA-dependent (e.g. the municipality of Palo is 85 percent IRA-dependent, the municipality of Pastrana is 95 percent IRA-dependent; (pers.comm. MPDOs)). Therefore, in the DRM context, poorer LGUs are trapped in a vicious circle, with poverty leading to a lack of funds for disaster prevention and preparedness measures, which in turn leads to a further increase in poverty due to greater impacts if another disaster strikes (Figure 18). Hazard-prone LGUs can only break out of this vicious circle if they are able to receive additional funding assistance from the national level adjusted to the risks they are facing.

It is therefore suggested that the current system covering the provision of financial resources for DRM measures be revised as follows:

Adjusting the Calamity Fund to the degree of risk LGUs are facing

Based on risk maps (incorporating potential natural hazards and vulnerabilities) each region, province, municipality and *barangay* is classified according to its degree of risk. For each administrative level, this type of classification should be undertaken by the next higher level. Following this, the size of the Calamity Fund is then adjusted with hazard-prone and highly vulnerable administrative units having a larger share at their disposal.

Creating an additional fund for disaster prevention measures.

An extra fund should be created, at all administrative levels, specifically for DRM prevention measures and this will financed by additional money released by the national level. To avoid misuse of this fund, it should only be utilized if LGUs submit specific project proposals for prevention measures to their respective Provincial Disaster Management Units (e.g. dikes, rip-rapping of rivers, sea walls, reforestation, clearing of clogged waterways, drainage). The size of the 'disaster prevention fund' will be adjusted according to the hazard risk of the LGU, using the aforementioned mechanism.

---

according to the following formula: population 50%, land area 25%, equal sharing 25%. Depending on the income they generate, municipalities are divided into income classes according to their average annual income during the last three calendar years, with 1st class municipalities obtaining more than 40 Million PhP and 6th class municipalities less than 7 Million PhP. Of the IRA that each LGU receives, at least 20% will be programmed for development projects, 55% for personal services (mainly salaries), 10% for the youth council, 5% for the Calamity Fund and 10% for maintenance and other expenses (including travel costs, etc.) (LGC 1991: 38; pers. comm. Canlingga).

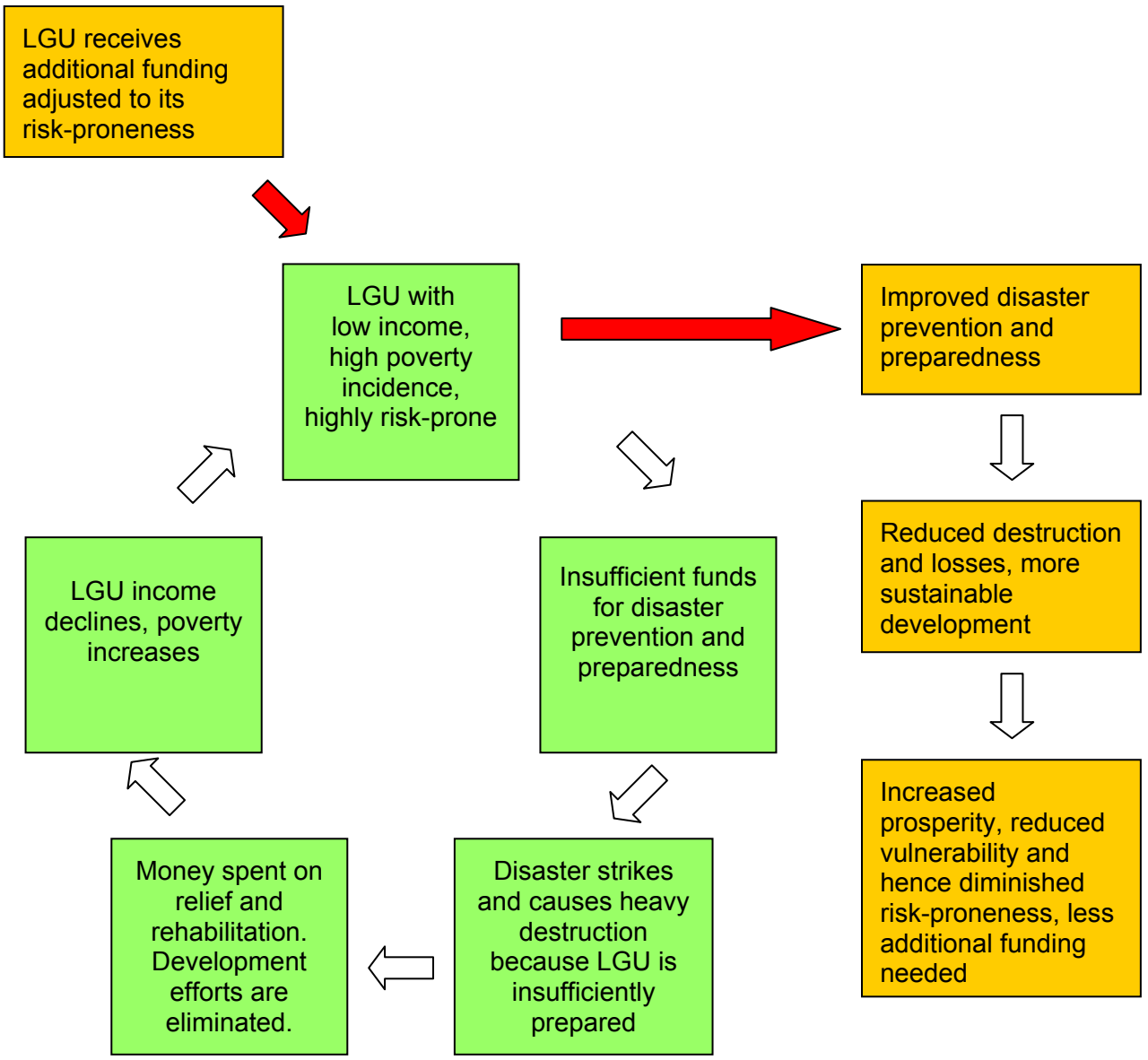


Figure 18: The Vicious Circle of Disasters and Poverty
Breaking out of the circle through financial replenishments for DRM.

Both mechanisms call for changes in the current legislation and it is recommended that the New Disaster Management Bill contain the necessary ordinances, rules and regulations for the adjusted Calamity Fund and the 'disaster prevention fund'. The new bill is, however, still pending (and is currently undergoing its fifth reading in parliament) and needs further advocacy support from national as well as international actors.

Changes in legislation will take time and can therefore only be regarded as a long-term option. There is, however, an urgent need for an immediate

implementation of disaster prevention and preparedness measures. Short-term options for funding such measures include the following:

- Advocacy for and **full implementation of the Joint Memorandum Circular of 2003** that already earmarks 30 percent of the Calamity Fund for disaster preparedness activities. To date, the JMC has been largely ignored by LGUs.
- **Halt the common practice of spending the Calamity Fund on salary bonuses** at the end of the fiscal year. This should lead to an accumulation of funds that should preferably be used to finance disaster preparedness measures (drills, preparedness training, purchase of rescue equipment and stock-piling of goods).
- LGUs should be held accountable for the use of their calamity fund through the introduction of a **tracking/reporting system** which evidences transparency and accountability.
- The IRA dependence of 5th and 6th class municipalities should be reduced through **internal revenue generation programmes** that enable municipalities to generate additional local revenues (e.g. through collecting real property tax, business tax, sand and gravel tax, etc.). This would increase the reserves in the Development Fund and would enable LGUs to spend more money on disaster prevention measures, including socio-economic measures to decrease the vulnerability of the local population.
- Furthermore, LGUs should be supported in **tapping external funding sources,** such as international donors, for certain DRM projects. Given that DRM has a high priority on the national and international agenda, such funding sources should be available.
- Resources for sustainable recovery following a disaster should include risk **transfer schemes such as insurance or credit facilities**. This is particularly important to ensure the viability of micro-enterprises and of small-scale farmers.

5.3.4 Further Initiatives to Promote the Integration of DRM

Besides the financial resources for disaster risk management discussed above, there are a number of other activities that would further the integration of DRM into development planning. Some of the endeavours suggested here tackle the specific challenges and problems that are currently hindering DRM integration (see Section 5.2.6).

- The DRM topic would benefit from increased **awareness raising** at all administrative levels in areas at risk. To date DRM is still a relatively new field. At municipal and provincial level, planners need to understand the importance of integrating DRM into development planning and need to familiarize themselves

with the suggested mechanisms. In particular, planners must be capacitated to appreciate the risk-reducing function of certain development projects. The current study has shown that well-informed and proactive staff can ensure that Development Plans have regard for disaster prevention and mitigation measures. At *barangay* level, the population at risk needs to understand the nature of disasters and their impacts, and needs to be aware of which DRM tasks they can tackle and for which tasks they need assistance from the municipality.

- The **political will** for DRM needs to increase. This could be tackled by increasing awareness of the fact that reconstruction and rehabilitation are more costly than prevention, and that disasters eradicate development efforts. Cost-benefit calculations for DRM measures should be formulated and discussed with political leaders. Financial support for reconstruction and rehabilitation should be less readily available, especially if it is obvious that the impacts of the disaster could have been reduced through better preparedness and prevention measures.
- An **accountability mechanism** needs to be instituted with selected staff responsible for DRM held accountable for disaster losses. While the legislation for such a mechanism already exists, it lacks enforcement. Furthermore, accountability would be easier to establish if a focal person, responsible for DRM activities, existed at the different administrative levels. Currently, responsibilities are unclear and spread between a number of staff.
- **Hazard maps,** at scales appropriate for planning, need to be provided for areas at risk. The current lack of trained staff and financial resources needs to be resolved through the joint efforts of national and international donors. Since this process will evolve over time, it is important that planners learn to work with the maps and data that are currently available.
- Municipalities require assistance in conducting **vulnerability analysis** in *barangays* at risk, and technical staff needs to be trained in order to be able to combine hazard and vulnerability maps to produce **risk maps.**
- For a successful integration of DRM in the planning process, there is a need for **improved coordination and communication** between all administrative levels.
- Based on the requirement for the capacities listed above, appropriate training modules will be suggested in Chapter 6.

6. Capacity Development

As shown in the previous chapter, disaster risk management is insufficiently included in most medium- and long-term plans of municipalities and even provinces. However, simply introducing a more comprehensive planning process does not guarantee improvements on the ground. Rules, laws, procedures and plans are abundant in the Philippines and are meant to regulate a decentralized political system, empowering the lowest administrative units and encouraging bottom-up planning. Yet, generally speaking, people are unfamiliar with the existing legislation and it is often implemented and applied in a piecemeal fashion. Traditional power structures and strong local leadership still prevail over existing legislation in many situations.

One reason for this is a lack of capacities (resources and skills) at the lower levels of governance. So far, decentralization has not been complemented with an adequate capacity-building process permitting each level to take over its full responsibilities as prescribed by the law. Few *barangays* have acquired the necessary capacities, and capacity-building at all levels remains a priority if LGUs are to become more self-reliant and resilient to natural hazards.

The first part of this chapter will delineate the roles and responsibilities of each level of local government and will identify the existing capacities as well as those that are still needed to fulfil these tasks. In a second step, recommendations for GTZ or other interested agencies are derived with regard to the LGU levels where DRM capacities should be developed and how this could be achieved.

6.1 Capacities for Disaster Risk Management

In the context of DRM, capacities are the sum of physical resources and skills, formal and informal social systems, and attitudes and belief systems that empower individuals and social units to cope with extreme events. Capacities for preventive and response measures should be taken into consideration when assessing the vulnerability of individuals and social units. These capacities provide the humus for development and can be built upon when planning interventions to reduce vulnerability (DIOS 2002:7).

The first part of this chapter provides an overview of the tasks and responsibilities of each administrative level within the local government structure with regard to DRM. This overview will then be compared with a self-assessment of the research units. The findings are categorized according to the Capacity and Vulnerability Analysis (CVA), a concept developed by an inter-NGO initiative and used by Oxfam, CARE and other development agencies. (CANNON:8). This concept was chosen

because it is a practical and diagnostic tool that allows for the identification of specific capacity development interventions, concentrating on the human aspects of disasters. Its strength lies in the fact that it offers a broad analysis framework which reflects livelihood aspects and links them to the more obvious vulnerabilities (physical and material) without neglecting those that are somewhat less visible but equally important (social/organizational and attitudinal/motivational) (TWIGG:3).

Physical and material capacities refer to the physical characteristics of a community that help to prevent, prepare and cope with disaster. They include productive resources such as land, climate, environment, health, skills and labour, infrastructure, housing, finances and technologies.

The **social and organizational** capacities encompass socio-political processes and structures in the community contributing, or potentially contributing, to effective DRM. The focus is on social, political and economic activities and decisions in both formal (political structures, associations) and informal systems (family and neighbourhood support, informal councils, authorities).

The **attitudinal and motivational** capacities refer to the beliefs, values, ideologies and attitudes towards individuals and society as a whole. This category is the hardest to comprehend and yet it sets the foundations for social interaction. Belief systems as well as experiences deeply influence how people assess chances for change, and how they act and react in extreme situations.[49] The so-called “dole-out” mentality – namely to look for external help rather than to help yourself – would be an example of such (lacking) capacities. (DIOS 2002:9).

At the end of each section, suggestions will be given as to who should be the recipient of the training. In some cases these suggestions go hand in hand with institutional changes and the creation of new structures and actors. In other words: they present the ideal set-up for effective DRM. Creating such a set-up is a long-term, ambitious process. Therefore, while laying out a long-term vision, the training modules introduced in the second part of this chapter are designed to function in both the present and future set-ups.

[49] Given the limited duration and wide scope of our field research, and the difficulty in gathering data for it, we did not look deeply into that aspect. We relied on what respondents told us, usually referring to another socio-political level. Higher levels would criticize a lack of responsibility and pro-activity at the lower levels, whilst the lower levels would complain about negligence, corruption and rigid power structures.

6.1.1 *Barangays*: Existing and Needed Capacities

The *barangays* visited differed in both their physical context and in their DRM capacities. In general, the *barangay* population and officials are in no position to engage in preventive measures. Even preparedness – reflected in operational disaster coordinating councils (only 3 DCCs out of 14 *barangays*) or existing disaster preparedness plans (2 out of 14) – is an exception and the result of recently conducted training courses.

The strengths of the *barangays* lie in their capacity to respond immediately to extreme situations without waiting for instructions or for outside assistance. The following are some of the most important capacities encountered in the *barangays* (for a detailed list of all existing and needed capacities see Annex 16):

- Awareness of approaching floods through observation or official warning (radio).
- Self-organized neighbourhood assistance and active *barangay* councillors during (evacuation) and after emergency situations (rehabilitation).
- Skills to construct makeshift shelters when evacuation centres are insufficient.
- Voluntary work for some rehabilitation.

Each *barangay* can use its Calamity Fund (CF), which usually allows for a distribution of food rations for one or maximum two days. For rapidity and in order to avoid chaos, these distributions are usually carried out without proper targeting. The knowledge that the CF can be used for prevention and preparedness has not sufficiently trickled down to the *barangay* level. The CF and even the Development Fund are usually considered to be too limited to finance technical interventions to reduce risks, and other priorities are designated for its use.

Evacuation centres (11 out of 14) or areas (14 out of 14) exist in all *barangays*. These centres are usually too small to accommodate the entire population affected and lack the necessary facilities (water and sanitation, room for medical treatment) for any long-lasting emergency situation.

Besides additional funds, *barangays* request material, organizational and attitudinal capacity development in the following areas:

- Infrastructure measures to contain hazards (flood control, irrigation, drainage).
- Material support for better response (boats, flashlights, means of communication).
- Organization of a proactive BDCC and the drafting of preparedness plans.
- Organization of volunteer groups to support the council.
- Better communication with the municipalities.
- Awareness training for a better understanding of possible prevention strategies.

Most *barangays* stated that livelihood training would be the most adequate intervention for reducing vulnerability and for strengthening the ability to cope.

Photo 10: Roofs are weighed down by tyres to withstand strong winds

Institutional changes to improve DRM in *barangays*

In order to respond to the above-mentioned needs and to establish continuity in disaster management, some structural changes within the *barangay* are suggested:

- A *barangay* action officer (BAO) who would serve as the key person for all disaster-related issues and as a counterpart of the municipality should be nominated. He/she should be either a member of the *barangay* council or a police officer (for an example see “Albay” Text Box, page xx).
- A *barangay* action team (BAT) composed of the BAO, other members of the *barangay* council and community volunteers should be formed. While not being a permanent body with permanent staff, it should meet regularly and be in charge of the *barangay* Action Plan for Disaster Prevention and Preparedness and the supervision of DRM mainstreaming in *barangay* planning.
- The already existing *barangay* disaster coordination council (BDCC) should remain and convene in times of disaster to provide immediate response.

6.1.2 Municipalities: Existing and Needed Capacities

Municipalities are crucial for LGU cooperation and coordination, because they are the link between the provincial and the *barangay* level. Compared with *barangays*, municipalities have a higher budget allowing for planning and implementation, skilled permanent employees in charge of the different administrative departments and a diverse economy, placing them in a better position to adopt DRM measures.

The municipalities' preventive infrastructure (dams, dykes, flood control, drainage) is often in need of maintenance and consolidation.[50] Existing legislation and regulations, e.g. zoning ordinances, are not always properly enforced and this can lead to inappropriate buildings or construction sites. Awareness of the link between erosion and deforestation is high, even if the extent of reforestation and its effects remain limited.[51] The paradigm shift towards the holistic DRM concept is taking place at the municipal administrative level, even though concrete ideas with regard to what could be done with the given resources to prevent and mitigate hazards still need to be developed.

In terms of organizational capacities, the thrust and dynamics of the municipalities depends strongly on the mayor and his/her programmes. MDCCs are generally more functional when it comes to response and to supporting affected *barangays*. In point of fact, rescue materials are usually stocked at that level (boats, emergency food). Some cross-municipal structures are emerging with the support of international organizations (GTZ in Binahaan) and the province. So far, they are focussing on an optimized and more accurate early-warning system (EWS) but potentially they are laying the foundation for a cluster or watershed approach to disaster risk management.

The main needs expressed for capacity development besides material support for efficient flood and coastal control were the following (for a detailed list of all existing and needed capacities see Annex 16):

- Planning for disasters, organizing MDCCs.
- Installing operations centres and training disaster focal persons.
- Capacitating *barangays* to become more self-reliant.

---

[50] During the research, a number of projects were encountered, where no or insufficient funds were allocated for maintenance. As a consequence, the implementation or long-term sustainability of the projects was at risk.

[51] Reforestation projects are widespread on paper, but often lack implementation. Furthermore, deforestation and 'slash and burn' activities are still common practice in the Philippines.

- Comprehensive watershed management in cooperation with neighbouring municipalities.
- Integrating DRM into land-use planning – raising awareness of departments.
- Perpetuating planning (including passing on knowledge and information after elections).
- Improving coordination between provinces, municipalities and *barangays.*

Municipalities see themselves as the core entity for most planning processes and their implementation. This view is shared by the provincial level and international organizations. There is an expressed need to be capacitated in terms of funds, manpower and skills to better fulfil that assignment and support the *barangay* level.

Institutional changes to improve DRM at the municipal level

In order to establish DRM as a cross-cutting issue and to ensure vertical and horizontal communication, a permanent body should be established at the municipal level. The following institutional changes are suggested:

- A **Municipal Action Officer** (MAO) will be assigned to serve as a contact person for all BAOs and for the province disaster management unit. In risk-prone areas specifically, the MAO should only be responsible for DRM and have a permanent post. For an initial period, the MAO should have no other tasks besides organizing the Municipal Action Team (MAT) and implementing training and awareness sessions. The MAO will then lead the vulnerability analysis in each *barangay* and will therefore acquire a good understanding about required prevention and preparedness measures at *barangay* level.
- A **Municipal Action Team** (MAT) headed by the MAO and composed of the MPDO, the MSWDO, as well as other members of the Executive Council (i.e. engineer) should be created. It would be in charge of facilitating capacity development related to DRM – both at municipal and *barangay* level – which should result in a municipal and *barangay* Action Plan for Disaster Prevention and Preparedness. This Action Plan would be based on vulnerability analyses conducted at *barangay* level by the MAT and existing hazard maps.
- MDCCs should continue to exist and convene in times of disaster to coordinate response measures. The DILG would provide training and support to the municipalities in establishing the action groups and the MDCC.

Photo 11: **River control measures at Binahaan river (Riprap)**

6.1.3 Provinces: Existing and Needed Capacities

Provincial administrations see their role in capacitating and supporting the lower LGU levels to perform their responsibilities. They define the major thrusts and coordinate, consolidate and delineate the framework for action of their LGUs. They stand between the national administration, represented by the regional line agencies, and the local administrations and the population. Furthermore, provinces appear to have considerable individual leeway regarding the institutional framework for DRM. This is reflected in the divergent DRM structures encountered in the provinces visited:

Leyte has a “classical” arrangement in which a PDCC convenes in times of need to coordinate the response. Since the PDCC proved dysfunctional during recent

activities,[52] a Provincial Disaster Assistance Response Team (DART) was formed to supervise response and to support the decentralized provincial focal persons for disaster response (provincial employees such as health workers, prison directors). Unfortunately, this new institution suffers from the same shortcomings as the Disaster Coordination Councils: the DART has no permanent office facilities or staff that focuses exclusively on DRM, and it does not focus on prevention and mitigation. In other words, with regard to its institutional set-up and its objective, DART does not appear to be structured in a way that would facilitate a shift in DRM from response to prevention.

The prerequisites for a proactive DRM strategy in Northern Samar are more promising: In 2006, the province created a Provincial Disaster Management Unit (PDMU), clustering together all disaster-related responsibilities formerly distributed among other provincial departments (e.g. the PSWDO). The Unit disposes of a permanent office and its tasks incorporate prevention, preparedness and response on a uniform basis. Despite these favourable conditions, currently the major part of the PDMU's activities are devoted to preparedness and response. The SLE team believe that the PDMU should become more proactive and assume more responsibility in helping to include prevention and mitigation on the agenda of decision-makers.

The following were some of the needs mentioned by both provinces: (for a detailed list of all existing and needed capacities see Annex 16)

- Support to mainstream DRM into planning (particularly prevention and mitigation).
- Support to capacitate LGU employees to fulfil their tasks.
- Comprehensive watershed management.
- Better coordination with municipalities.[53]
- Information collection, analysis and management (mapping, Geographical Information System (GIS), data base of volunteer groups and interventions).
- A first step would be to enhance the understanding of disaster risk management of key decision-makers at that level and to pool ideas on how, within their areas of responsibility, disaster risk could be reduced.

[52] This refers to the activities following the 2006 landslide in Southern Leyte.

[53] This was actually mentioned by several municipalities who complained that some provincial activities bypassed them, particularly when it came to important disaster response activities, thereby promoting duplication and inefficiency.

Institutional changes to improve DRM at provincial level

Coordination of disaster-related issues, such as mainstreaming DRM into planning at the various LGU levels, the supervision of municipal and provincial DRM measures and structures, and the organization of training courses, should be pooled in a permanent department at provincial level:

- A **Provincial Disaster Management Unit** (PDMU) should be established (for best practice see Text Box 2). It should be institutionalized and have its own budget.
- The PDMU should be managed by the **Provincial Disaster Management Officer** (PDMO) and should have at least four permanent staff responsible for: (i) administration and training, (ii) research and planning, (iii) operations and warning instructions, and (iv) the issuance of Hazard Compliance Certificates. Besides organizing a functioning preparedness and response structure, responsibilities of the PDMU would consist of:
  - preparing the Provincial Action Plan for Disaster Prevention and Preparedness;
  - conducting training at municipal level to capacitate the municipal action officers (MAO);
  - coordinating municipalities and supervising the operations of established structures, and
  - assisting the staff of provincial departments in integrating disaster prevention and mitigation measures into their strategic and annual planning.
- The PDCC will continue to exist and convene in times of disaster.

6.1.4 Conclusion/Remarks

The analysis reveals that each administrative level has internal strengths that can be used as a starting point for further enhancing capacities. External interventions are recommended and requested on matters concerning organizational capacities and planning.

Barangays are regularly confronted with hazards affecting their livelihoods. They have a reasonably functioning response system but have difficulties with long-term coping. Their organizational capacities for disaster preparedness and mitigation, as well as for mid- term planning, are limited and need to be strengthened.

Municipalities have greater funds, more professional employees and a broader vision on issues and plans. Yet their capacities for vertical (passing on knowledge to *barangays* and provinces) and horizontal communication (exchange within, and with other, municipalities) appear moderate, resulting in few comprehensive plans, and in

ad hoc management. The existing capacities should be used to help develop holistic and binding plans allowing for better coordination with the provinces, as well as trainer capacities to disseminate that knowledge to *barangays*, thus creating a firmer basis for municipal plans and activities.

Provinces are the facilitators between national and municipal levels. Their task – to coordinate and consolidate municipal (disaster) plans and activities and to supervise the implementation of land use regulations – needs to be supported in terms of building capacities at the local levels. In addition, the holistic DRM concept and how it can be translated into concrete preventive measures needs to be propagated.

An obstacle to these interventions is the prevailing attitude favouring top-down and *ad hoc* decision-making. Decades of response-oriented disaster management and institutions providing relief goods have created a "dole out" mentality and demotivated people to maintain self-help mechanisms. The high turnover of administrative staff combined with an unsystematic handing-over of office functions and instruction of responsibilities, makes it necessary to conduct regular refresher training.

A number of structural changes in the administrative set-ups have therefore been suggested, leading to the installation of permanent disaster management structures or focal persons to ensure continuity and to facilitate coordination and capacity development at all levels.

6.2 Proposed Interventions

In line with GTZ's holistic approach towards disaster risk management (DRM), the preceding analysis has focused on existing and needed capacities throughout the entire DRM cycle, including prevention and mitigation, preparedness and response. However, it is apparent, that while some underlying capacities are lacking in all of the Local Government Units, each level also has some very specific needs that correspond to its specific role in disaster management.

The challenge, therefore, was to design a coherent, but flexible, capacity development strategy that addresses the underlying needs for capacity development without neglecting the differences from level to level. In order to achieve this objective, a modular system was developed.

Photo 12: Participants of a workshop on *barangay* level presenting their final results

6.2.1 Training Modules

Based upon the research findings, **capacity development modules** were designed (see Figure 19). The modules outlined here provide a summary overview of the intended training. Each module consists of a number of components. Depending on the level for which the intervention is planned, the contents and length of these training components will vary, in order to provide a capacity development strategy that is adapted to the specific needs of each level. For a detailed representation of the training components at each level, see Annex 17.

Training Modules

Basic Disaster Risk Management Module (BDRMM)

Outcomes

1. Improve the **preparedness** and **response** capacities of the participants
2. Draft an **Actionplan for Disaster Prevention and Preparedness** including the content of the components listed below

BDRMM+ is designed as a training of trainers in order to have an additional outcome:

3. Enable participants to carry out the training themselves

Components

- Awareness raising (preparedness and response)
- Risk analysis & mapping (including data collection and analysis with regard to hazard and vulnerability)
- Preparednes drills and trainings with a special focus on responsibilities, communication, coordination, early warning system, search and rescue, evacuation

Advanced Disaster Risk Management Module

Outcomes

1. Improve the **prevention** and **mitigation** capacities of the participants
2. Capacitate participants to integrate DRM into development planning

ADRMM+ is designed as a training of trainers in order to have an additional outcome:

3. Enable participants to carry out the training themselves

Components

- Awareness raising (advantages of and knowledge about prevention & mitigation measures)
- Integrating DRM into development planning
  - DRM in sectoral planning
  - Funding DRM measures
- Participatory bottom-up planning

Figure 19: Disaster Risk Management Modules

6.2.2 Main Partners for Capacity Development

It would be advisable to create new (permanent) structures for disaster management in order to shift from a reactive to a proactive approach. However, institutional changes are very complex and time-consuming processes. Therefore, the capacity development strategy proposed in this study has a two-step approach:

In the short-term and reflecting the current institutional set-up (including mandates and responsibilities), the following actors will be the principal recipients of the training modules in order for these important focal points to become themselves multipliers of the proposed modules:

- **National Economic Development Authority** (**NEDA,** national and Region VIII) is responsible for the integration of DRM into planning. Capacitating NEDA will facilitate the dissemination of knowledge to the regional and provincial levels.
- **Office of Civil Defence** (**OCD,** Region VIII) is mandated to supervise DRM measures and to implement preparedness training. Capacitation of the OCD would facilitate the dissemination of knowledge to the provincial level.
- **Provincial Disaster Management Unit** (**PDMU** in Northern Samar) is the focal unit for all disaster-related activities in Northern Samar. Strengthening the PDMU would: raise awareness about disaster risk, improve coordination between the Local Government Units, and enhance the coping capacities of the population concerned.
- **Disaster Coordination Councils (DCCs at provincial, municipal and *barangay* levels)** are the main actors for disaster management. The interdisciplinary councils should hold regular meetings. Participants at such meetings would be able to raise awareness and facilitate the dissemination of knowledge within their administrative department.
- **Decision-makers at all levels.** It would be highly advisable to inform and sensitize local chief executives about the importance of DRM prior to commencing capacity development activities. This applies to all levels for which capacity development activities are foreseen.

6.3 Phases and Levels of Intervention

The above-mentioned modules would be integrated into a **three-phase strategy** that would allow for prompt interventions in those areas that require immediate attention, without neglecting those medium- and long-term measures that would assure the sustainability of the project in hand. The following flow-chart illustrates the sequence of capacity development interventions, as well as at which levels they should take place (see Figure 20).

Through the integration of the training modules into the three-phases, the devised capacity development strategy fulfils the following criteria:

- Training is flexible and adaptable to allow for optimal capacity development delivery according to the varying needs at different levels and at different times.
- Multi-level interventions take place to ensure that the impact is felt at all levels of the national administrative set-up. This reflects the fact that, while disasters are local phenomena and should be addressed as such, they often exceed the coping capacities of local actors. Furthermore, disasters are often exacerbated by human behaviour. Frequently, activities in one municipality or *barangay* have a direct influence on the disaster risk of another. Against this background any serious DRM approach necessitates collaboration and networks that transcend the different levels of government as well as of civil society.
- External capacity development agencies primarily assume the role of facilitators for capacity development (i.e. bringing key stakeholders together and overseeing the content of the training), rather than being the principal trainers. Existing capacities related to different disciplines are integrated as much as possible in the training. This interdisciplinarity encourages a mutual learning experience among local actors, thereby creating synergies while keeping the costs of the training to a minimum.
- The external support will gradually be phased out to ensure ownership and sustainability.

Following this overview of the projected capacity development interventions, the remainder of the chapter will comprise a more elaborated description of the training interventions (who are the trainers, who are the participants, what is the content of the training).

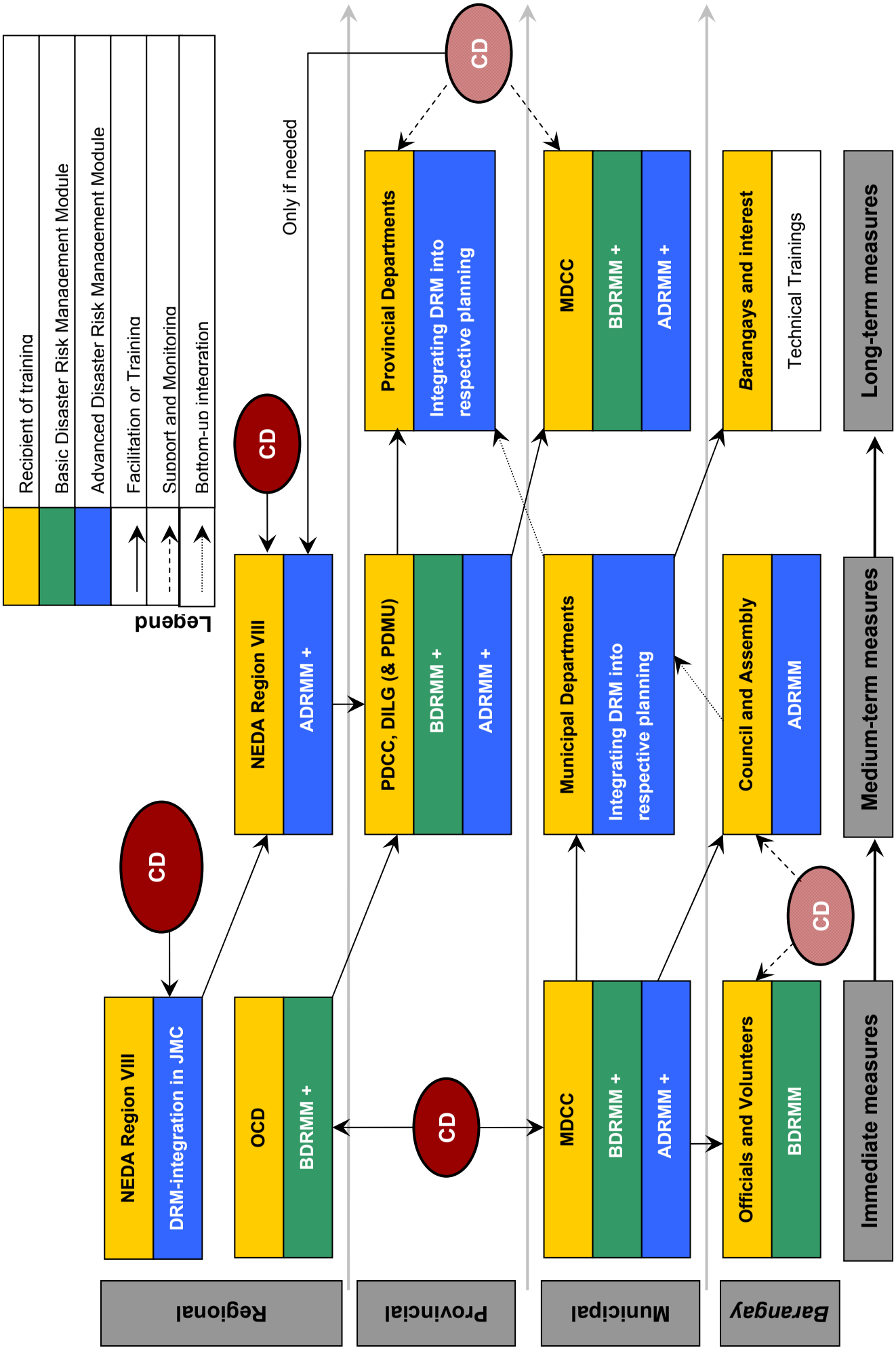


Figure 20: Proposed Capacity Development Interventions

6.3.1 Immediate Interventions

Immediate interventions should help to ensure that DRM is properly integrated into planning at the policy-making level. These interventions should also respond to the immediate need for preparedness capacities in order to ensure that the ability of the population to cope with disasters is increased. The denomination “immediate” refers to the priority status of these issues and to the need for instantaneous results. It does not imply that the impact of these measures is of a temporary nature.[54]

Lobbying at national, regional, provincial and municipal levels

At national and regional levels, external agencies should lobby and support **NEDA**, which has been mandated to integrate DRM into planning. An important step would be to have DRM integrated for the roll-out of the 2007 Joint Memorandum Circular.[55]

Lobbying should focus on:

- **Awareness-raising** with regard to the importance of DRM, stressing the social and economic benefits of adopting a proactive strategy (i.e. through field visits);
- **Institutionalizing DRM** as a cross-cutting issue, elaborating concrete methods/examples with the different departments involved in planning, for complementing their programmes and projects with DRM measures.
- While the inclusion of DRM in plans does not guarantee a smooth and exhaustive implementation at lower levels, it would convey an important political signal.

Training

Despite the fact that the **OCD** retains a comprehensive knowledge about DRM, currently its training initiatives still focus on preparedness and response. Therefore, the OCD should be supported, through external capacity development, to streamline its training activities in line with the content of the **BDRMM+** proposed in this report. This would ensure that training activities for provincial and municipal levels, which are to be conducted by OCD would have the same output as the BDRMM+ training given by capacity development agencies at municipal level. With the phasing-out of external interventions, OCD’s BDRMM+ will assume responsibility as the institution in charge of training. External capacity development agencies will merely retain a monitoring role, if any.

---

[54] For a graphic understanding of short, medium and long-term measures reflecting the type of measures and the institutions concerned compare Figure 20. For details of the training interventions, see Annex 17.

[55] For more information on this initiative see section 5.1.1.

Municipal Level

At municipal level the **Municipal Disaster Coordination Council/Municipal Action Team** should be created and trained. Training at this level is advantageous, because the municipal government is composed of professional staff.

At this initial stage, external capacity development agencies should be committed to improving the cooperation between the different LGUs and to designing training activities that combine preparedness and integration of DRM into local planning. To accomplish this, the municipal level will be at the core of the initial capacity development measures, consisting of the BDRMM+, as well as the ADRMM+[56].

- The **Basic Disaster Risk Management Module Plus (BDRMM+)** at municipal level has two main objectives. On the one hand, to clarify responsibilities as well as to improve vertical and horizontal communication and coordination. On the other hand, to capacitate the MDCC/MAT to carry out preparedness training at *barangay* level (BDRMM).
- The **Advanced Disaster Risk Management Module Plus (ADRMM+)** for municipalities should enable the MDCC/MAT to feedback their knowledge to their respective departments to ensure DRM integration into municipal development planning. At the end of the training the participants should also be qualified to carry out participatory development planning workshops along the lines of the ADRMM at the *barangay* level (see Annex 17).

The final outcome of the training activities offered at the municipal level would be to enable the participants to conduct the above-mentioned training activities and workshops at *barangay* level which, during the initial stages, will receive strong external support. The modular character of the training activities offered would allow the MDCC/MAT to sequence and adapt training according to the needs at the local level.

Barangay level

At *barangay* level, capacity development interventions should be conducted by the MDCC/MAT and be directed towards the **BDCC/*Barangay* Action Team (BAT)**. The inclusion of volunteers[57] will ensure sustainability and enhance capacities and ownership, since a high turnover of *barangay* official posts was noted. Volunteers could further help to disseminate the DRM message to households.

---

[56] For details of the previewed components see Annex 17.

[57] Recipients for the training should be selected on a “best qualified” basis, taking into consideration prior training, experience, or other specific capabilities of the resident involved.

Through external capacity development, the MDCC/MAT would be able to implement the **Basic Disaster Risk Management Module (BDRMM)**, which aims at strengthening the preparedness and response capacities of the *barangay*. This training should include many different measures:

- Firstly, awareness-raising through the identification of risks and mapping exercises, and by carrying out a vulnerability analysis. These measures would serve as a basis for the identification of possible prevention measures.
- Secondly, drills to improve the coping capacities of the local population. These drills should focus both on communication and responsibilities during a disaster, and on technical issues.

The initial thrust of the immediate measures aims at improving preparedness and response capacities at the local level, and initiating the integration of DRM into the development planning process. Activities are already in hand to capacitate the municipal level to conduct participatory planning workshops in *barangays* as a first step towards improved bottom-up planning. The final outcome of these training activities will be the formulation of a *Barangay* Action Plan for Disaster Prevention and Preparedness.[58]

6.3.2 Medium-Term Interventions

The medium-term interventions aim at improving the ability to adopt a long-term and proactive approach towards dealing with disasters. Existing planning capacities and development plans are necessary preconditions for the successful implementation of this approach. Therefore the medium- and long-term measures will be geared towards linking planning with DRM.

Regional level

Once the Joint Memorandum Circular 2007 has been amended and enhanced, NEDA has the mandate for coordinating and supervising its implementation in the Visayas. Therefore, external capacity development agencies should **continue to support NEDA Region VIII during the JMC roll-out** in the Easter Visayas and in that way ensure the integration of DRM at regional and provincial levels. Furnishing support at this level has two important advantages. Firstly, it recognizes existing responsibilities and secondly, it provides the regional level with the necessary knowledge to ensure the capacitation of the provincial level.

[58] Details on the *barangay* training and the Preparedness Plan can be found in the template in Annex 17.

NEDA Region VIII should be supported in order to be able to integrate DRM as a cross-cutting issue in the Regional Development Plan and the Regional Physical Framework Plan in accordance with the new guidelines. To achieve this, the **Advanced Disaster Risk Management Module Plus (ADRMM+)** should be offered to those persons within NEDA who are directly involved in the drafting of these plans. The ADRMM+ at that level would focus on the integration of DRM into planning and would capacitate the training for trainers participants to subsequently pass on their knowledge to the provincial level.

Provincial level

In addition to the **ADRMM+** training conducted by NEDA, the capacitation of the **PPDO**, **DILG** and **PDMU** along the lines of the **BDRMM+** would be carried out by OCD. The provincial level, in turn, should subsequently (in the long-term) offer the same training activities at municipal level, thereby strengthening inter-administrative cooperation.

Municipal level

As was the case during the first phase, the municipal level would also play a vital role in the second phase of capacity development. External capacity development agencies should therefore **maintain their support for the Municipal Disaster Coordination Council/Municipal Action Team**. The MDCC/MAT should focus on those *barangays* that are most affected by disasters, offering training along the lines of the ADRMM with the objective of facilitating a participatory medium-term planning process at *barangay* level (see the following paragraph for more details).

Barangay level

Another crucial element in improving the DRM capacities of the Local Government Units is the focus on the *barangay* level. Taking into account the aforementioned lack of planning capacities at this level, a strong focus of the intervention in this connection must be on the basics of planning and integrating DRM. In this respect, *barangays* that are especially prone to hazards should be offered the **Advanced Disaster Risk Management Module (ADRMM)**. ADRMM is designed to capacitate people with less prior planning knowledge in a participatory process. A one-week workshop would be offered by the MDCC/MAT, directed at the *barangay* council and the general assembly of the local population. The final output of the workshop would be a mid-term development plan which integrates DRM as a cross-cutting issue. Initially, external capacity development agencies could assume the role of a co-facilitator, thereby supporting the process of grassroots planning. The external

input, however, should gradually decrease to allow increased responsibility and ownership by the MDCC/MAT.

6.3.3 Long-Term Interventions

In the long term, external support will gradually fade out – however, the training structures and modules will remain and improve with experience. The role of capacity development agencies as facilitators of planning and DRM training will be taken over by the responsible departments and agencies: ADRMM+ and BDRMM+ at provincial level would be provided by OCD and NEDA. ADRMM+ and BDRMM+ at municipal level would be conducted by the province, particularly PDCC, DILG, PDMU and PPDO. ADRMM and BDRMM at *barangay* level would be conducted by MDCC/MAT (and strongly supported by BDCC/BAT). At *barangay* level, it is important that the training modules should initially be predominantly conducted in hazard-prone areas. However, since the ADRMM also offers capacity-building for general planning skills, it could in the longer-term also be conducted in less hazard-prone areas. The degree of DRM integration into development planning would be adapted accordingly.

For a while capacity development agencies could retain monitoring and consulting functions. This would ensure that (i) the quality of the training given during the first phase is sustained, and (ii) the training could be repeated or adapted, if the outcome is not as expected.

Barangay planning workshops will presumably result in specific requests for technical training on different livelihood or organizational issues. The MDCC/MAT is responsible for feeding these requests back to the respective departments at municipal or provincial level and for assisting the *barangays* to formulate proposals for external support. Only if the interventions previewed in the plans materialize and produce positive changes, will the planning become a sustainable and meaningful exercise.

6.4 Conclusions

Strengthening existing capacities and skills at all levels should be a priority if LGUs are to become more self-reliant and resilient to natural hazards. In addition to material support, capacity development interventions were requested for organizational matters and for strengthening planning capacities:

- **Provinces** need to be supported in developing capacities at local levels and in the creation of an institutional framework conducive for effective DRM. In addition, a holistic DRM concept needs to be propagated together with how it can be translated into preventive measures.
- **Municipalities** should be assisted in developing holistic and binding plans which integrate DRM. Furthermore, at this level training capacities should be developed, so that planning and DRM knowledge can be disseminated. Finally, coordination among LGUs should be improved.
- ***Barangays*** should be assisted in organizing quick response on the one hand, and on the other hand, in medium-term planning, be encouraged to better voice their needs in terms of livelihood diversification and technical support.

Succinctly: while some underlying capacities are needed throughout the Local Government Units, each level requires very specific skills that reflect the diverging roles in DRM. To address these differences, two training modules are suggested:

- The first would focus on preparedness capacities, in particular risk identification, responsibilities and communication.
- The second would strengthen planning capacities with DRM as a cross-cutting issue.

These modules would be integrated into a three-phase strategy that guarantees a coherent but flexible delivery of capacity development adapted to the needs at each administrative level. The modules would contain training of trainer activities to guarantee the dissemination of knowledge and enhance top-down processes. At the same time, bottom-up procedures would be strengthened through the creation of mid-term development plans at *barangay* level, that could then be considered at higher levels. From the outset of the capacity development initiative, local actors from different disciplines would be at the core of the strategy – both as participants and as trainers. This reflects the fact that many skills already exist in the Philippines. Anchoring capacity development firmly within the local structures responsible for disaster risk management creates a greater sense of ownership and increases the likelihood of a successful and sustainable endeavour.

7. Implications for Future Interventions to Support DRM

The findings of this study, as outlined in the previous chapters, advocate a number of activities to support the local population, Local Government Units and agencies, in their efforts to improve Disaster Risk Management (DRM). While some of the interventions proposed in the paragraphs below are adapted to the specific circumstances in the two investigated watersheds, others have a much wider applicability that extend well beyond the municipal and even regional level. Hence, this chapter could serve as a guideline for future interventions that will further DRM.

Reducing people's vulnerability to disasters

- Disasters in the research area are mainly regularly occurring floods that do not threaten lives but livelihoods.
- Vulnerability to disasters is caused by a lack of social, environmental, physical, human and financial assets – primarily: monocultures, unemployment, lack of savings, deforestation, inappropriate watershed management, etc.
- Disasters are not among the most pressing problems in many of the investigated *barangays*. Hence it is necessary to raise people's awareness of the importance of DRM, in order to motivate them to engage in such activities and to overcome reactive behaviours.
- In order to reduce vulnerability, the diversification of livelihoods is decisive (small businesses, livestock, diversified and flood resistant agriculture). A DRM approach neglecting the importance of livelihood initiatives is likely to deviate from the most pressing needs of the population.
- To reduce people's vulnerability to disasters, preparedness (through seed storage, crop insurance, drills, communication, early-warning systems) is important, especially given the likelihood of devastating calamities (flash floods, typhoons).

Supporting the integration of DRM into development planning

- Disasters can erase development efforts, hence DRM is a prerequisite for sustainable development.
- Proactive risk management focuses on disaster preparedness and prevention measures. Such measures need to be anchored in the planning process as a cross-cutting issue.
- Planning therefore requires a more holistic and strategic approach.

- Spatial planning must be based on accurate risk maps. Based on these maps high-risk areas should be exempt from development.
- In medium-risk areas, all projects should require hazard compliance certificates to ensure that they do not exacerbate disaster impacts and that they are able to withstand them.
- DRM-specific projects should be listed in the Action Plans for Disaster Prevention and Preparedness and should be funded by the Development Fund and Calamity Fund (which should be adapted according to the degree of risk).
- GTZ and other agencies should lobby for the integration of DRM in the JMC rollout that aims at harmonizing the planning process.
- Important steps for the integration of DRM in planning at LGU level:
  - awareness-raising with regard to the importance of DRM;
  - knowledge of appropriate disaster prevention and mitigation measures, including reducing the vulnerability of the affected population through socio-economic development;
  - appreciation of the link between environmental degradation and disasters and ability to plan and implement an integrated watershed management;
  - illustrate how to increase internal revenue generation and decrease dependence on the IRA (additional funding for DRM).
- Challenges: no continuity in planning due to a high staff turnover, preference for short-term projects, corruption (particularly affecting infrastructure projects), lack of implementation of plans, lack of accountability, lack of political will for DRM, current lack of risk maps (data collection will take time and require additional resources).

Creating an appropriate legislative and institutional framework for DRM

- Current legislation is strongly focussed on response. A paradigm shift towards prevention and preparedness needs to be reflected in new legislation including:
- fiscal incentives for proactive risk management at LGU level (adjusted Calamity Fund)
- a new institutional set-up for DRM (establishing permanent disaster management units at provincial and municipal levels and focal persons at *barangay* level).
- Permanent DRM staff should assist planners to integrate DRM in spatial and development planning.
- Challenges: the new bill has been pending for five years; the commitment on the part of the government is not high and there is reluctance to release additional

funds. National and international actors need to push for the passage of this bill through parliament.

Capacitating actors and line agencies at different administrative levels

- At LGU level there is a lack of capacity for proactive DRM, in particular at the lower levels of governance.
- Some underlying capacities are needed throughout the local government units:
  - awareness about the advantages of prevention and mitigation;
  - knowledge on how to integrate DRM into planning.

Due to different roles and responsibilities in DRM, each administrative level has specific capacity development needs:

- Provincial: providing institutional framework and passing on DRM knowledge to the municipal level;
- Municipality: linking local government units and passing on DRM knowledge to the barangay level;
- Barangay: quick response and participatory development planning.

Two training modules were designed:

- the basic module focusses on preparedness and response;
- the advanced module improves planning capacities including disaster prevention measures.

Importance of training the trainers components: higher administrative levels to pass down approaches and capacities to lower levels.

Training should be designed in such a way that the support now provided by development agencies could gradually be reduced.

Bibliography

ADB (2005): Poverty in the Philippines: Incomes, Assets and Access. Asian Development Bank (ADB).

ADPC (2001): The Philippine Disaster Management Story: Issues and Challenges. Asian Disaster Preparedness Centre. Thailand.

ADPC/GTZ (2006): Comprehensive Risk Management by Communities and Local Government. Case Study Philippines. 2nd draft. ADPC/GTZ.

BANKOFF, G. (2003): Cultures of Disaster. Society and natural hazards in the Philippines. London.

BASS, S. (2006): The role of local institutions in reducing vulnerability to recurrent natural disasters and in sustainable livelihoods development. Asian Disaster Preparedness Centre (ADPC). FAO. Rome.

BATTISTA, F.; BAAS, S. (2004): The role of local institutions in reducing vulnerability to recurrent natural disasters and in sustainable livelihoods development. Rural Institutions and Participation Service. FAO. Rome.

BENSON, C.; TWIGG, J. (2004): Measuring Mitigation. Methodologies for assessing natural hazard risks and the net benefits of mitigation. A scoping study. Synthesis Report. International Federation of Red Cross and Red Crescent Societies / ProVention. Geneva.

BLAIKIE, Piers; CANNON, Terry; DAVIS, Ian; WISNER, Ben (1994): At Risk - Natural hazards, people's vulnerability, and disasters. London and New York.

BMZ (2004): Katastrophenvorsorge - Beiträge der deutschen Entwicklungszusammenarbeit. Materialien Nr. 135. Bonn.

BRITTON, Neil R. (2006): Getting the foundations right: In pursuit of effective Disaster Legislation for the Philippines. Contribution to the 2nd Asian Conference on Earthquake Engineering March 10-11 2006. Manila.

CANNON, T., J. TWIGG, J. ROWELL (2001)**:** Social vulnerability, sustainable livelihoods and disasters. Report to the Department for International Development (DFID). Conflict and Humanitarian Assistance Department. Greenwich.

CAPONES, E.M. (2007): Institutionalizing the community-based monitoring system (CBMS) in the Philippines. 6th PEP Research Network General Meeting. Peru.

DENR (2003): DENR Administrative Order No.2003-30. Implementing rules and regulations (IRR) for the Philippine environmental impact statement (EIS) system. Manila.

DFID (1999): Sustainable Livelihoods Guidance Sheets. London, Department for International Development (UK). (http://www.livelihoods.org/info/info_guidancesheets.html,16.11.2007).

DILG (2007): Overview of the planning process in the Philippines. A rationalized planning system. (http://www.dilg.gov.ph/blgd/rps.htm#a,12. 20.6.2007)

DIOS, H.B. de (2002): Participatory Capacities and Vulnerabilities Assessment: Finding the link between disaster and development. Oxfam. Manila.

EMI (2006): Basic material for the consultative forum on the disaster risk management bill. Earthquakes and Megacities Initiative. Manila.

EMI (2006/2007): A primer on the proposed Disaster Management Bill. Earthquakes and Megacities Initiative. Manila.

GILBERT, R., KREIMER, A. (1999): Learning from the World Bank's experience of natural disaster related assistance. World Bank. Washington D.C.

GROETSCHEL, A., AQUINO R.R., BUCHHOLZ, I., IBKEDANZ, A., SALES, N.A., SEVEN, J., VICENTUAN, K.C. (2001): Natural Resource Management Strategies on Leyte Island, Philippines. Baybay/Berlin.

GTZ (2002): Disaster Risk Management - Working Concept. GTZ. Eschborn.

GTZ (2004): Risk analysis – a basis for disaster risk management. GTZ. Eschborn.

GTZ (2005): Mozambique: Disaster Risk Management along the Rio Búzi – Case Study on the Background, Concept and Implementation of DRM in the Context of the GTZ-Programme for Rural Development. GTZ. Eschborn.

GTZ (2006): Situation, Needs and Opportunities in the Binahaan Watershed Area. Leyte, Philippines.

HYOGO (2005): Hyogo Framework for Action 2005 to 2015: Building the resilience of nations and communities to disasters. Extract from the final report of the World Conference on Disaster Reduction. International Strategy for Disaster Reduction ISDR. Kobe. Hyogo. Japan.

IIRR (2006): Building Resilient Communities: A Training Manual on Community-Managed Disaster Risk Reduction. International Institute of Rural Reconstruction. Cavite. Philippines.

ISDR (2002): Living with Risk - A global review of disaster risk initiatives. International Strategy for Disaster Reduction. Geneva.

ISDR (2007): Disaster Risk Reduction: 2007 Global Review. Preliminary edition. International Strategy for Disaster Reduction. United Nations. Geneva.

JMC (2007): Joint Memorandum Circular No.1 Series of 2007 - Guidelines on the harmonization of local planning, investment, programming, revenue administration, budgeting and expenditure management. DILG/NEDA/DBM/DF. Manila.

LGC (1991): The local government code of the Philippines. Manila.

MACKILL, D.J. (2006): From genes to farmer's fields. The practical application of gene discovery to develop submergence-tolerant rice will help farmers avoid the ravages of severe flooding. Rice Today. Vol.5, No.4.

MTPDP (2004): Medium-term Philippine Development Plan 2004 to 2010. National Economic Development Authority (NEDA). Manila.

Natural Hazard Working Group (2005): The Role of Science in Physical Natural Hazard Assessment - Report to the UK Government. London.

NDCC (2007): Institutionalization of the Cluster Approach in the Philippine Disaster Management System. Designation of Cluster Leads and their Terms of Reference at the National, Regional and Provincial Level. Circular No. 05. 2007. Manila.

NEDA/GTZ (2003): Decentralized planning structures project: baseline study on PPBIM. Final Report. Region VI, VII, VIII. Philippines.

OCD (2007): Local Chief Executives Information Kit (Utilisation of Local / National Calamity Fund). Composed by OCD Region 8 for distribution to LCE. Manila.

PANADERO, A. (2006): A framework for assessing fifteen years of Philippine decentralization. In: Revisiting Decentralization in the Philippines 2006. Summary of Conference Proceedings. Set.18-19.2006. Manila

PD 1586 (1987): Presidential Decree No. 1586. Establishing an environmental impact statement system including other environmental management related measures and for other purposes. Manila.

PPFP (2000): Provincial Physical Framework Plan 2000 to 2009. Province of Leyte. Philippines.

PPFP (2003): Provincial Physical Framework Plan 2004 to 2013. Province of Northern Samar. Philippines.

RA 8185 (1996)**:** Republic Act No. 8185 - An act amending the local government code of 1991. Manila.

RDIP (2005): Regional Development Investment Program 2005 to 2010. Eastern Visayas.

RDP (2004): Regional Development Plan 2004 to 2010. Eastern Visayas.

READY (2005): Hazard mapping and assessment for effective community based disaster risk management (READY). Government of the Philippines, United Nations Development Programme, Government of Australia. Manila.

REESE, N.; WERNING, R. (2006): Handbuch Philippinen – Gesellschaft – Politik - Wirtschaft –Kultur. Bad Honnef.

REPUBLIC OF THE PHILIPPINES (2006): An Act strengthening the Philippine disaster risk management capability, appropriating funds therefore and for other purposes. Thirteenth Congress, House of Representatives, Quezon City. Manila.

RIGOR, Roger S. (2006): Disaster Risk Management Legislation: a background on the process. Presented at consultative forum on the disaster risk management bill, October 13 2006. Manila.

RPFP (2005): Regional Physical Framework Plan: 2005-2030. Region VIII, Eastern Visayas. Philippines.

SLE (2006): Katastrophenvorsorge – Eine Herausforderung für die Entwicklungszusammenarbeit. Entwicklungspolitische Diskussionstage 2006. Berlin.

SPAHN, B. (2006): Decentralization in the Philippines in the Light of International Experience. In: Revising Decentralisation in the Philippines. International Conference. GTZ. Manila.

STIEBENS, W. (2006): Einbindung von Katastrophenvorsorge im Programm zum nachhaltigen Management natürlicher Ressources, Philippinen. Bericht über Gutachtereinsatz 18.6. – 9.7. 2006.

TWIGG, J. (2007): Tools for mainstreaming Disaster Risk Reduction. Vulnerability and Capacity Analysis, Guidance Note 9. ProVention Consortium, Geneva.

UN/ISDR (2007): Guidelines – National Platforms for Disaster Risk Reduction. International Strategy for Disaster Risk Reduction**.** Geneva.

UNDP (2004): Reducing Disaster Risk: A Challenge for Development – A Global Report. UNDP Bureau for Crisis Prevention and Recovery. New York.

UNOCHA (2007): A concept note on the joint NDCC, Un and Partners Cluster Preparedness Action Plan Workshop, September 2007, Manila.

UNU-EHS (2007): Cross-boundary Early Warning in Europe – Workshop Summary. United Nations University. Institute for Environment and Human Security. Bonn.

WORLD BANK, NDCC (2004): Natural disaster risk management in the Philippines: Enhancing poverty alleviation through disaster reduction. Manila.

XU, K., XU, X., FUKAO, T., CANLAS, P., MAGHIRANG-RODRIGUEZ, R., HEUER, S., ABDELBAGI, M., ISMAIL, A.M., BAILEY-SERRES, J., RONALD, P.C., MACKILL,

D.J. (2006): Sub1A is an ethylene-response-factor-like gene that confers submergence tolerance to rice. Nature. Vol.442. Issue 7103. London.

YODMANI, S. (2001): Disaster risk management and vulnerability reduction: protecting the poor. Asian Disaster Preparedness Centre. Bangkok. Thailand.

Annex

I Glossary

Glossary of Filipino terms:

Bayanihan

is a Filipino term taken from the word *bayan*, referring to a nation, town or community. The whole term *bayanihan* refers to a spirit of communal unity or effort to achieve a particular objective like spontaneous neighbourhood help.

Barangay

A barangay is the smallest local government unit in the Philippines and is the native Filipino term for a village.

Kagawad

A kagawad is a barangay council. Seven barangay kagawads compose together with the punong barangay, and the chairman of the Sangguniang Kabataan (Youth Council) the Local government Unit on barangay level and are called barangay officials.

Nipa

Nipa palms (Nypa fruticans) is the only species in the genus Nypa and the only palm considered a mangrove. The long, feathery leaves are used by local populations as roof materials for thatched houses or dwellings.

Pintakasi

Pintakasi is a Filipino term referring to a spirit of communal unity or effort to achieve a particular objective. It is often summoned by barangay officials, for instance for beautification measures in a village where food and drinks for the volunteers are offered.

Punong barangay

A punong barangay is the barangay captain or village chief and is heading the barangay council (Sangguniang Barangay).

Riprap

Riprap is rock or other material used to armor shorelines against water erosion. Riprap reduce water erosion by resisting the hydraulic attack and dissipating the energy of flowing water or waves.

Sangguniang

The Sangguniang is the legislative body composed of elected members and representatives of socials groups and sectors. It is mandated by the Local Government Code to enact ordinances and to approve resolutions and funds.

On provincial level it is called Sangguniang Panlalawigan, on municipal level Sangguniang Bayan and on barangay level Sangguniang Barangay.

Tanod

Barangay tanods are village security officers. They are barangay officials and charged with the maintenance of public order, protection and security of life and property.

Utang na loob

(Debt of gratitude) Utang na loob is one of the principles of Filipino society based on the idea that one needs to return whatever someone has done for him/her with another favour. It is Utang na loob which binds the members of the group to one another. However, the practise of returning favours has very often been pinpointed as the cause of many of society's problems, since it is an obligation that is often difficult to fulfil and leading to a complex network of interdependencies.

Disaster specific terms[59]

Disaster

A disaster is a disruption in the normal functioning of a society which leads to loss of human life, property and environmental resources, and which exceeds the ability of the affected communities to cope unaided.

Disaster preparedness

Preparedness comprises measures that can be carried out for fast and effective evacuation, to save human life, mitigate loss and damage and provide emergency assistance. Full-scale preparedness includes: early-warning systems, deployment and coordination capabilities, emergency plans, emergency supply reserves and training.

[59] Modified after GTZ (2002)

Disaster prevention and mitigation

Disaster prevention and mitigation denotes activities that prevent or mitigate the adverse effects of extreme natural events, above all in the medium and long term.

These include on the one hand political, legal, administrative and infrastructure measures to address the hazard situation and on the other hand influencing the lifestyle and behaviour of the endangered population to reduce their disaster risk.

Disaster risk

Disaster risk designates the extent of the damage and loss a natural event is expected to cause. It is determined as the product of the factors hazard and vulnerability over capacities.

Hazard includes the probability and the magnitude of the anticipated natural event; vulnerability comprises a number of political-institutional, economic, sociocultural and geographical factors.

Disaster risk management / Disaster risk reduction

In Technical Cooperation disaster risk management comprises action (programmes, projects and/or measures) and instruments whose intended impacts are expressly aimed at reducing disaster risk in endangered regions and mitigating the extent of disasters. Disaster risk management is the generic term for the operational areas risk assessment, disaster prevention and mitigation and disaster preparedness.

Hazard

Hazards are extreme natural events that can have adverse consequences. The extent of the hazard depends on its probability within a certain period of time and region and the severity of the event.

Risk assessment or risk analysis

A survey is made of the current hazards posed by extreme natural events as well as the respective local vulnerability of the population and their basis for livelihood to ascertain the specific risks within a region. Based on this information disaster risk can be purposively reduced.

Vulnerability

Vulnerability denotes the inadequate means or ability to protect oneself against the adverse impacts of external events on the one hand and on the other to recover quickly from the effects of the natural event. Vulnerability is made up of many political-institutional, economic and sociocultural factors.

II Definition of Goals and Objectives

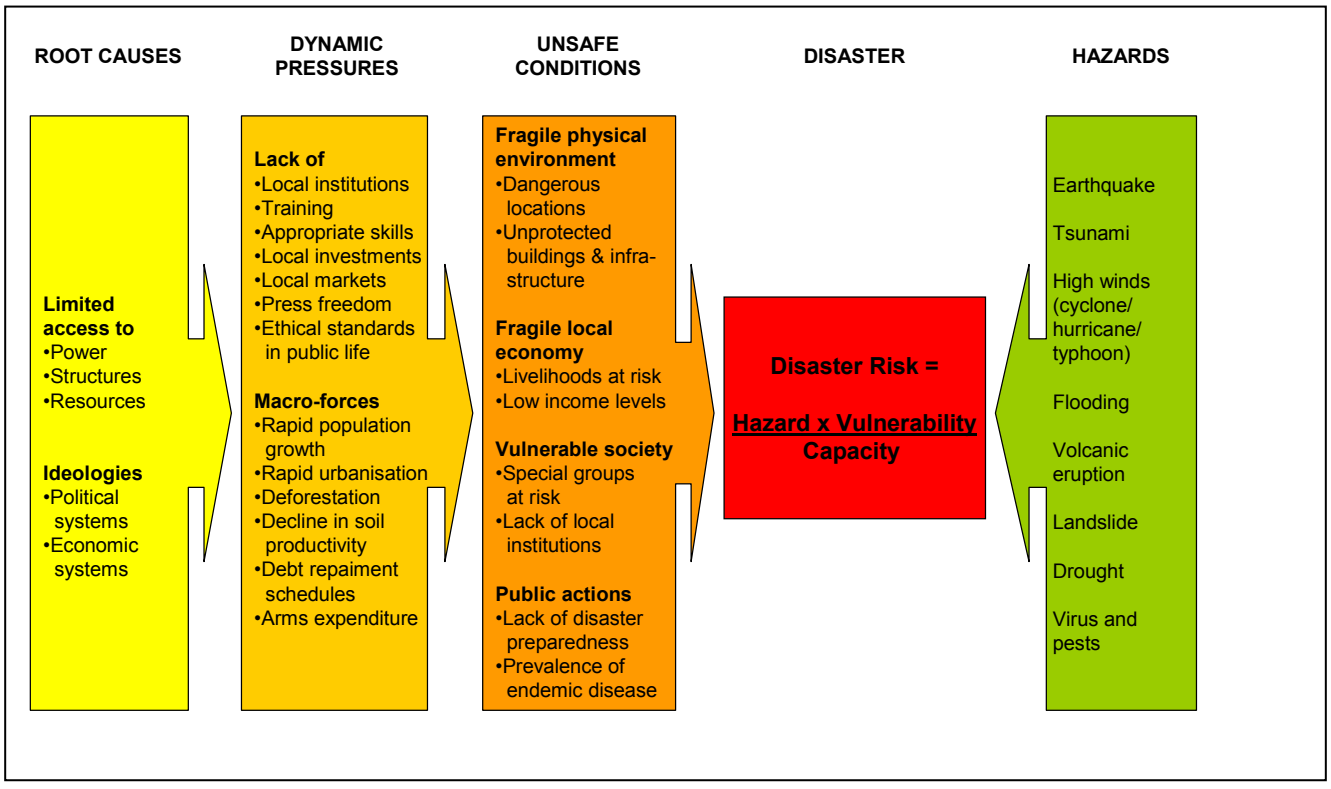
Output	Purpose	Goal
1) An inventory of ongoing, recently accomplished projects and planned activities, projects & studies on DRM in region VIII is carried out	I) GTZ-EnRD/DIPECHO and LGUs have at their disposal a baseline study of DRM activities in region VIII in order to improve planning & coordination efforts	DRM in region VIII is improved, thereby encouraging sustainable natural resource management and minimising the vulnerability of the disaster-prone population
2) Institutional concepts and approaches of international agencies and state institutions are collected and reviewed		
3) Major findings &lessons learnt are presented in a working template for DRM planning		
1) The perception of risk of different levels of local government structures and the population in selected areas is assessed & analysed	II) Perspectives of local population are considered in order to adjust DRM to local needs	
2) In a selected area a participatory vulnerability analysis is carried out		
1) Shortcomings, potentials and lessons learnt considering DRM mainstreaming are identified by analysis of selected development plans	III) GTZ-EnRD & selected LGUs of region VIII are informed about options of how to integrate DRM into regional and provincial development plans	
2) Recommendations for integrating DRM into development plans are given		
3) A template for the integration of DRM in development plans on different administrative levels is developed		
1) Specific needs for capacity building and training in DRM of local government personnel (and population concerned?) are identified based on prior outputs	IV) GTZ knows the specific needs for capacity development and training in DRM on different levels of administrative structure (+ population concerned?)	
2) Recommendations for adapted capacity development measures and training modules are given		

III Blaikies pressure and release model

The “pressure and release model” (BLAIKIE et al 1994: 23) attempts to explain disasters by tracing a progression that connects the impact of a hazard on people through a series of levels of social factors that generate vulnerability. People live in “unsafe conditions”, meaning in dangerous locations, with a fragile economy and/or with special groups at risk. They are confronted with “dynamic pressures” with lacking local institutions, inappropriate skills, lacking market facilities or macro-forces such as rapid urbanisation, deforestation or population growth. Underlying these relationships are root causes limiting the access to power or resources based on ideologies and economic systems.

If responses to address the various causes of vulnerability on each level are found, the disaster risk of a population can be reduced (“release”).

The model was not applied as an analytical tool in the current study, but is presented here since it provides a holistic view of vulnerability.



IV Meetings on local government level

Table of meetings, interviews and group discussions on LGU level					
Date	**Province**	**Municipality**	**Barangay**	**Position**	**Type of meeting**
31. Jul	Region VIII			TWG DRM Binahaan, Ormoc, Northern Samar	Workshop: research concept, work plan
06. Aug	Leyte	Tanauan		Mayor	Orientation
06. Aug	Leyte	Tanauan		MSWDO	Interview
06. Aug	Leyte	Tanauan		MPDO	Interview
06. Aug	Leyte			TWG	Meeting
06. Aug	Leyte	Dagami		Mayor	Orientation
06. Aug	Leyte	Dagami		MSWDO	Interview
06. Aug	Leyte	Dagami		MPDO	Interview
06. Aug	Leyte	Pastrana		Mayor	Orientation
06. Aug	Leyte	Pastrana		MSWDO	Interview
06. Aug	Leyte	Pastrana		MPDO	Interview
08. Aug	Leyte	Tanauan	Balud	Barangay Captain	Interview
08. Aug	Leyte	Tanauan	Balud	BHW	Interview
08. Aug	Leyte	Tanauan	Balud	Barangay Coucil	Group discussion
08. Aug	Leyte	Tanauan	Balud	Kagauan	Transect

Date	Province	Municipality	Barangay	Position	Type of meeting
08. Aug	Leyte	Dagami	Rizal	Barangay Captain	Interview
08. Aug	Leyte	Dagami	Rizal	BHW	Interview
08. Aug	Leyte	Dagami	Rizal	Barangay Coucil	Group discussion
08. Aug	Leyte	Dagami	Canlingga	Barangay council	tools
08. Aug	Leyte	Dagami	Canlingga	Several Barangay council members	Transect
08. Aug	Leyte	Dagami	Canlingga	Barangay council	Group discussion
09. Aug	Leyte	Tanauan	Malaguicay	Barangay Captain	Interview
09. Aug	Leyte	Tanauan	Malaguicay	Barangay Council	Group discussion
09. Aug	Leyte	Tanauan	Malaguicay	Barangay Captain	Transect
09. Aug	Leyte	Tanauan	Santo Nino	Barangay Captain	Interview
09. Aug	Leyte	Tanauan	Santo Nino	BHW	Interview
09. Aug	Leyte	Tanauan	Santo Nino	Barangay Council	Group discussion
09. Aug	Leyte	Tanauan	Santo Nino		Transect
10. Aug	Leyte	Tanauan	Malaguicay	Civil Society	Group discussion
10. Aug	Leyte	Tanauan	Santo Nino	Barangay Council	Group discussion
13. Aug	Leyte	Palo		Mayor	Orientation meeting
13. Aug	Leyte	Palo		MSWDO	Interview
13. Aug	Leyte	Palo		MPDO	Interview
13. Aug	Leyte	Palo		Barangay Council	Group discussion

Date	Province	Municipality	Barangay	Position	Type of meeting
13. Aug	Leyte	Pastrana	Lourdes	Barangay Captain	Interview
13. Aug	Leyte	Pastrana	Lourdes	BHW	Interview
13. Aug	Leyte	Pastrana	Lourdes	Barangay Council	Group discussion
13. Aug	Northern Samar			Governor	Courtesy call
14. Aug	Leyte	Palo	Cabarasan Guti	Barangay Captain	Interview
14. Aug	Leyte	Palo	Cabarasan Guti	BHWs, Brgy nutrition scholar & service point officer	Interview
14. Aug	Leyte	Palo	Cabarasan Guti	Barangay Council	Group discussion
14. Aug	Northern Samar	Catarman		Mayor	Courtesy Call
14. Aug	Northern Samar	Lope de Vega		Mayor	Courtesy Call
15. Aug	Northern Samar	Catarman	Jose Abad Santos	Barangay Council	Group discussion
15. Aug	Northern Samar	Catarman	Jose Abad Santos	Tanods and Kagauan	Transect
15. Aug	Northern Samar	Catarman	Jose Abad Santos	Barangay Captain	Interview
15. Aug	Northern Samar	Catarman	Baybay	Barangay Council	Group discussion
15. Aug	Northern Samar	Catarman	Baybay	Barangay Captain	Interview
15. Aug	Northern Samar	Catarman	Baybay	2 BHW	Interview
15. Aug	Northern Samar	Catarman	Baybay	Barangay Captain+ selected council members	Transect
16. Aug	Leyte	Palo	Cangumbang	Barangay Captain	Interview
16. Aug	Leyte	Palo	Cangumbang	Barangay Council + BHW & Tanod	Group discussion
16. Aug	Northern Samar	Catarman	Polangi	Barangay Council	Group discussion

Date	Province	Municipality	Barangay	Position	Type of meeting
16. Aug	Northern Samar	Catarman	Polangi	BHW & Captain	Group interview
16. Aug	Northern Samar	Catarman	Polangi	Barangay Captain	Interview
16. Aug	Northern Samar	Catarman	Polangi	Kagauan	transect
16. Aug	Northern Samar	Catarman	Somoge	Barangay Council	Group discussion
16. Aug	Northern Samar	Catarman	Somoge	Barangay Captain	Interview
16. Aug	Northern Samar	Catarman	Somoge		Transect
17. Aug	Northern Samar			PPDO	Interview
17. Aug	Northern Samar			PEO	Interview
17. Aug	Northern Samar			PLUMO	Interview
17. Aug	Northern Samar			PAO	Interview
17. Aug	Northern Samar			PSWDO	Interview
17. Aug	Northern Samar			PAGASA	Interview
17. Aug	Northern Samar			PENRO	Interview
21. Aug	Northern Samar	Lope de Vega	Poblacion	Barangay Council	Group discussion
21. Aug	Northern Samar	Lope de Vega	Poblacion	Barangay Captain	Interview
21. Aug	Northern Samar	Lope de Vega	Poblacion	BHW	Interview
21. Aug	Northern Samar	Lope de Vega	Poblacion		Transect
21. Aug	Northern Samar	Lope de Vega	Bayho	Barangay Council	Group discussion
21. Aug	Northern Samar	Lope de Vega	Bayho	Barangay Captain	Interview

Date	Province	Municipality	Barangay	Position	Type of meeting
21. Aug	Northern Samar	Lope de Vega	Bayho	3 BHW	Interview + Discussion
22. Aug	Northern Samar	Lope de Vega		MPDO	Interview
22. Aug	Northern Samar	Lope de Vega		MHO	Interview
22. Aug	Northern Samar	Lope de Vega		DILG	Interview
22. Aug	Northern Samar	Lope de Vega		Development Council	Group discussion
22. Aug	Northern Samar			PDMU	Interview
23. Aug	Northern Samar	Catarman		MPDO; DILG; ;Menv; MSWDO	Group discussion
23. Aug	Northern Samar	Catarman		MEO	Interview
23. Aug	Northern Samar	Catarman		MAO	Interview
23. Aug	Northern Samar	Catarman		Plan Phil	Interview
23. Aug	Albay Province			PDMU / secretary PDCC	Interview
23. Aug	Albay	Santo Domingo		MPDO	Interview
24. Aug	Albay	Camalig		Mayor, MPDO, MSWDO, Action Officer	Group Interview
24. Aug	Albay	Camalig	Anoling	Barangay Captain	Casual conversation
24. Aug	Albay	Santo Domingo		MSWDO	Interview
30. Aug	Leyte			PCA (prov. Chief administrator)	Interview
31. Aug	Leyte	Binahaan		Director Operation Centre	Interview
31. Aug	Leyte			Director province DILG	Interview
03. Sep	Leyte	Tanauan		MPDO, Council	FGD

Date	Province	Municipality	Barangay	Position	Type of meeting
03. Sep	Leyte	Tanauan		DILG	Engineers
03. Sep	Leyte	Tanauan		MAO	OIC
03. Sep	Leyte	Tanauan		MEO	Engineers
03. Sep	Leyte	Tacloban		PPDO	Interview
04. Sep	Leyte	Tacloban	PCIC	Director	Interview
04. Sep	Leyte	Tacloban	REIS	Consultant	Interview
04. Sep	Leyte	Tacloban	DART	Director	Interview
07. Sep	Leyte	Tacloban	PAO	OIC	Interview
10. Sep	Leyte	Tacloban	PAGASA	OIC	Interview
10. Oct	Leyte			Key Informants Leyte province & municipalities	Workshop, feedback, discussion
10. Oct	Northern Samar			Key Informants Northern Samar & municipalities	Workshop, feedback, discussion
10. Oct	Northern Samar			Barangay Captains Catarman & Lope de Vega	Workshop, feedback, discussion
11. Oct	Leyte			Barangay Captains Palo, Tanauan, Dagami	Workshop, feedback, discussion

V Meetings on regional and international level

Table of meetings, interviews and presentations on regional and national level and with international organisations				
Date	**Organisation / level**	**location**	**Position**	**Type of meeting**
25. Jul	GTZ	Tacloban	GTZ DRM Consultant	briefing, workplan
30. Jul	Region VIII	Tacloban	Regional, province and municipal key persons	Opening presentation
31.7 - 3.8	GTZ, Region VIII	Cebu	mainly MPDOs Biliran	workshop JMC 2007/planning
13. Aug	GTZ	Tacloban	DRM consultant	Briefing
14. Aug	GTZ	Tacloban	DRM capacity building consultant	discussion
15. Aug	GTZ	Tacloban	DRM advisor	Briefing
21. Aug	PAGASA	Manila	Deputy Director for operations and services	Interview
21. Aug	UNDP	Manila	Assistant Resident Representative Environment	Interview
22. Aug	OCD / NDCC	Manila	Chief operations division	Interview
22. Aug	AusAID	Manila	First Secretary, Development Cooperation	Interview
22. Aug	CDP	Manila	OIC	Interview
23. Aug	OXFAM	Manila	Humanitarian Programme Coordinator	Interview
23. Aug	PHIVOLCS	Manila	Associate scientist	Interview
24. Aug	FAO	Manila	National Consultant/Emergency Officer	Interview
24. Aug	World Bank	Manila	Human Development Sector Coordinator	Interview/discussion
24. Aug	Red Cross (PNRC)	Manila	Acting manager DRM	Interview/discussion
27. Aug	ADB	Manila	Staff consultant	Interview
27. Aug	WHO	Manila	Emergency and Humanitarian Aid Action Programme Officer	Interview

Date	Organisation / level	location	Position	Type of meeting
03. Sep	NIA Region VIII	Palo	Regional director	Interview
03. Sep	PNRC Region VIII	Tacloban	Director	Interview
06. Sep	OCD Region VIII	Palo	Regional director	Interview
07. Sep	NEDA Region VIII	Palo	Regional director deputy	Interview
07. Sep	GTZ	Tacloban	DRM advisor, Capacity Development advisor	discussion
11. Sep	DPWH Region VIII	Palo	RD, engineers N-Sam, Binahaan	Interview
14. Sep	CARE	Manila	OIC	Interview
14. Sep	German Embassy	Manila	Counsellor	Courtesy call
14. Sep	GTZ	Manila	Interim programme manager EnrD, Consultant EnRD	Information and interview
14. Sep	GTZ	Manila	Programme manager decentralisation	Interview
14. Sep	JICA	Manila	In-House consultant	Interview
14. Sep	GTZ	Tacloban	CBFM programme consultant	Interview
16. Okt	Region VIII	Tacloban	Key persons DRM Region VIII	Presentation of results
19. Okt	National / international agencies	Manila	Key organisations DRM Philippines	Presentation of results

VI National actors and agencies in DRM

Lead agencies in disaster management will be briefly presented in this sub-chapter to complete the general view on DRM structures. The following table introduces the actors and their responsibilities in DRM on national level. Only a brief overview is given here, a more detailed description of some agencies can be found in the annex when indicated.

Agency	**Responsibilities**
Armed Forces of the Philippines	Providing security in disaster area and assistance in the reconstruction of roads, bridges and other structures Providing transportation facilities for rapid movement of relief supplies and personnel and for the evacuation of disaster victims
Department of Agriculture	Surveys to determine the extent of damage to agricultural crops, livestock and fisheries, Providing technical assistance to disaster victims
Department of Budget and Management	Releasing funds required by the departments for disaster operations
Department of Finance	Issuing rules and regulations on funding (with the Department of Budget and Management)
Department of Education, Culture and Sports	Providing assistance in public education and campaign for disaster preparedness, prevention and mitigation through the integration in school curricula of relevant subjects Providing school buildings as evacuation centres Organising and training disaster control groups and reaction teams
Department of Environment and Natural Resources (DENR) MGB (Mines and Geoscience Bureau) (operating within DENR)	Reforestation Controlling areas that tend to cause flooding, landslides, mudflow and ground subsidence Providing technical assistance on resource management (mines, forests) Formulating regulations for the control of water and land pollution; advising on environmental pollution MGB geological investigations (e.g. landslide prone areas) recommendations for spatial planning.
Department of Health	Providing health services during emergencies Organising reaction teams in hospitals and other health institutions Issuing appropriate warnings to the public on the occurrence of health hazards

Agency	Responsibilities
Department of Interior and Local Government	Oversees the organisation of local disaster councils, and the establishment of Disaster Operation Centres Organisation of training of DCC members in coordination with OCD, DSWD, Philippine National Red Cross, and other appropriate agencies
Department of Labour and Employment	Organising and training Disaster Control Groups in all factories and industrial complexes Providing employment to disaster victims Implementing the industrial civil defence programs
Department of Public Works and Highways (DPWH)	Restoration of destroyed public infrastructure (flood control, waterworks, roads, bridges) Providing equipment for relief, rescue and recovery
Department of Science and Technology (DOST) PAGASA (Philippine Atmospheric, Geophysical and Astronomical Services Administration PHIVOLCS (Philippine Institute of Vulcanology and Seismology)	Research to optimise forecast, warning and long term prevention through PAGASA and PHIVOLCS: PAGASA: record and analyse meteorological and climatologic parameters Weather forecasting; issuing typhoon warnings and flood alert installation of community based flood early warning systems under the **Ready Project** PHIVOLCS prediction of volcanic eruptions, earthquakes and tsunamis advising on preparedness measures. mapping activities contribute to the **Ready Project**
Department of Social Welfare and Development (DSWD)	Relief assistance and social services to the victims as necessary Providing assistance in rehabilitation
Department of Tourism	Organises and trains disaster control groups and reaction teams in hotels and other tourist-oriented facilities
Department of Trade and Industry	Supervising levels of commodity prices during emergencies Organising disaster control groups and reaction teams in large buildings used for commercial and recreational purposes
Department of Transportation and Communications	Restoration of destroyed communication and transportation facilities Organisation of emergency transport services from the national to the barangay level

Agency	Responsibilities
National Economic and Development Authority (NEDA)	Analysing effects of disasters and calamities on the socio-economic plans and programmes of the country - Integrating DRM into planning
National Housing Authority	Assessing requirements of displaced persons Providing temporary housing and rebuilding of destroyed areas
Office of Civil Defence (OCD)	Coordination of activities of the different governmental and private actors to implement the policies and programmes of the NDCC Preparation and dissemination of materials on disaster management; advises the DCCs
Philippine Information Agency	Disseminating public information on disaster mitigation and disaster preparedness
Philippine National Red Cross	Conducting disaster leadership training courses, assisting in the training of DCCs at all levels Pproviding emergency relief assistance to disaster victims

Overview of member agencies of the NDCC and its functions in Disaster Management. Source: ADPC, 2001: The Philippine Disaster Management Story: Issues and Challenges, 2001 and interviews

OCD – the operating arm of the NDCC

As secretariat to the national and regional DCC, the Office of Civil Defence plays a key role for the implementation of DRM related regulations, for capacitating LGUs and for coordinating and masterminding disaster management. It is affiliated to the armed forces and has only recently shifted its operational focus from response and preparedness to prevention. The paradigm shift within OCD towards a proactive, pre-disaster management is evident in the present **four point agenda** that comprises:

1) Upgrading forecasting abilities (PAGASA, PHIVOLCS)
2) Public information campaign on disaster preparedness[60]
3) Capacity building for local government units in vulnerable areas
4) Developing mechanisms for public-private sector partnership in relief and rehabilitation

[60] Disaster awareness has been extended from being a part of educational programmes to public initiatives like the National Disaster Consciousness Month, that started in 1998 with the objective to raise the consciousness of the Filipinos on disaster management.

OCD has a special spotlight on 5th and 6th class municipalities whose budget relies mainly on internal revenue allotment (IRA) and which therefore have a very small calamity fund (pers. comm. OCD Manila). On the regional level OCD sees as main challenges the lack of leverage on local chief executives regarding the implementation of DRM regulations as well as the lacking continuity in local politics and thus the perpetual need to re-capacitate that level (pers.comm.. OCD Tacloban).

Forecasting and warning: PAGASA, PHIVOLCS and MGB

All three agencies collect and analyse data and thus set the basis for several disaster reaction measures.

PAGASA (Philippine Atmospheric, Geophysical and Astronomical Services Administration) records meteorological and climatologic parameters and is involved in weather forecasting. It is responsible for typhoon warnings and flood alert and is the lead agency for the installation of community based flood early warning systems under the **Ready Project** (see text box).

PHIVOLCS (Philippine Institute of Vulcanology and Seismology) is specialised in prediction of volcanic eruptions, earthquakes and tsunamis and is advising on preparedness measures. Their mapping activities contribute to the **Ready Project**. They are the Chair of the Collective Strengthening of Community Awareness for Natural Disasters (CSCAND) Technical Working Group. PAGASA and PHIVOLCS operate under the umbrella of the Department of Science and Technology (DOST)

MGB (Mines and Geoscience Bureau) focuses on geological investigations (e.g. landslide prone areas) and gives recommendations for spatial planning. MGB is affiliated to the department of Environment and Natural Resources (DENR)

All three agencies are involved in hazard mapping along their specific subjects and in the installation and supervision of early warning systems (EWS).[61] Sub-national bureaus gather local data for analysis in Manila. The three bodies are involved in the preparation and implementation of a future Strategic National Action Plan (SNAP) for DRM assisted by the UN. For training on natural disasters and coping mechanisms they cooperate with PDCC or OCD.

Main challenges to all these agencies were reported to be a lack of skilled staff since trained people enter the private sector or decide to work for higher salaries abroad (brain drain) (pers. comm. PAGASA & MGB Manila). Interviews further revealed a lack of information about ongoing projects and activities on national and local level. A

[61] PAGASA for instance installs rain gauges and teaches observers to analyse locally received data and issue warnings to responsible bodies on municipal level to disseminate the information to barangays (pers. comm. CARE).

lack of communication/cooperation with international agencies was also mentioned (pers.comm.. PAGASA)

Environmental management: DENR

The mandate of the Department of Environment and Natural Resources (DENR) is to ensure a sustainable management of natural resources and environmental protection making it a key stakeholder for long-term preventive measures. The MGB as well as the Environmental Management Bureau (EMB) operate under its authority. EMB in particular deals with natural resource management by conducting environmental impact assessments (EIA), issuing environmental compliance certificates (ECCs) and supervising the implementation of environmental standards (e.g. water and air quality). DENR's responsibilities include reforestation[62] and sustainable watershed management, measures that are of high importance for the investigated areas and can be considered a contribution to long term disaster risk reduction.[63]

The regional office works in close cooperation with the RDCC and, as a member of the National Statistics Coordinating Board provides data on landslides and flood terrain features.

Encountered difficulties on the regional level are :

- finding qualified staff
- coordinating natural resource management, given the high number of involved agencies and the unclear responsibilities.

Securing national infrastructure: DPWH

The Department of Public Works and Highways (DPWH) is the implementing agency for all national infrastructure projects. In respect to DRM it is involved in disaster-related constructions (e.g. flood controls, sea walls – though they are not the agency proposing the construction). In hazard-prone areas, it includes recommendations issued by MGB for construction of drainage (the latter since a department order issued in 2005) and takes part in post-disaster surveys.

Flood control projects under DPWH in Binahaan watershed only take place in combination with bridge protection/stabilisation. A **Flood Master Plan** giving

[62] From 735,000 ha of forests in region VIII in 1969, the remaining stock has decreased to 455,400 ha in 1990. For 2015 only 200,530 ha are predicted (DENR, website).

[63] DENR in Tacloban stressed during the interview that disasters in region VIII are not man-made and occur due to natural effects (like the landslide in Guinsaugon).

guidelines for flood prevention or mitigation (in cooperation with DENR) is still in the process of consolidation.

Priority constraints of the department are lack of funds, which negatively effects the quality of infrastructure and leads to less emphasis on disaster prevention and mitigation aspects.

A non-governmental player: Philippine National Red Cross

The Philippine National Red Cross (PNRC) is the only NGO represented in the NDCC. 94 chapters (offices) with own budgets are distributed over the Philippines. Disaster Management is one out of 6 components with a focus on both preparedness and response.

Red Cross is highly engaged in providing **DRM trainings** everywhere in the country (with focus on areas at risk, including training of trainers) and community based activities trying to establish volunteer groups for DRM. Trainings are coordinated with PHIVOLCS and PAGASA (pers. comm. PNRC Manila).

The recently started nationwide **"I love Red Cross"- campaign** (2006-2009) aims at recruiting 43 volunteers per barangay, among them 9 as disaster managers and 9 as first aid workers. While PNRC is strong in emergency response, it has often been criticised for favouring a parallel structure in emergencies that could undermine local health offices and for reluctance to cooperate with others (pers.comm.Allen Molen).

VII Overview of DRM approaches and activities of selected international organisations[64]

Organisation	Concept/Approach & Importance of DRM	DRM activities – in Philippines	DRM activities – in Region VIII	Planned/Future Activities	Lessons Learnt/ Best Practise	Challenges/ Constraints/Problems
ADB	DRM not a cross-cutting issue Focus on large relief operations world-wide Regional department has a team for disaster preparedness Systematic approach to DRM is being developed Targeting macro-level, all programmes through government Grants or loans Ccontributions from member countries Disaster risk reduction facility	DRM is a new programme Country Special Programme (CSP) for Philippines still being drafted and will be decided upon by NEDA and DF (Dep. of Finance) as ADB counterparts	After Guinsaugon: Southern Leyte Landslide Disaster Assistance Programme (SLLDAP) 80% hardware (classrooms, roads, improvement of hospitals), 20% software (SWOT analysis of LGUs and capacity building) Southern Leyte Response Programme (SLRP), SOLERT – Southern Leyte Response Teams Finances for READY project	Southern Leyte: Building prov. disaster management office Training: community based DRM, medical aid, rescue Capacity building in 5 mun. (5 brgys. per mun.) Building of municipal response teams linked to MDCCs Training in hazard mapping and planning Hardware terminates 2009, software 2008		Lack of absorptive capacities on government side in terms of personnel Its time for a policy change in DRR but ADB is not in a position to what should change Political difficulties after elections Moving from ad-hoc decisions to proper DRM policies and harmonization of efforts To capacitate LGUs

[64] In alphabetical order. Based on interviews with representatives and analysis of printed documents

Organisation	Concept/Approach & Importance of DRM	DRM activities – in Philippines	DRM activities – in Region VIII	Planned/Future Activities	Lessons Learnt/ Best Practise	Challenges/ Constraints/ Problems
AusAID	DRM increasingly relevant on international as on national agenda in the Philippines AusAID approach on three levels: Global: funding of int. organisations (UN/OCHA, Int. Red Cross); Regional: different projects mainly in Southeast Asia; Country level (Philippines): through partners (due to lack of own capacities), e.g. UNDP, Red Cross, OXFAM	2006 1,3 Mio. $ help in initial response after several typhoons Funding of school (re)buildings, supplies and emergency kits Capacity building for Phil. National agencies (PAGASA, PhiVolcs, MGB,…) by exchange with Australian counterparts Cooperation with ADPC/Bangkok on a safe construction programme Funding of **READY project** as long term DRM 40% of budget for education programmes, building schools etc.; DRM is increasingly (though not explicitly) mainstreamed in those programmes	In 2006 after the landslide in **Southern Leyte** (Guinsaugon) : one Mio. $ for rehabilitation, through to local organisations → 132 houses built away from permanent disaster risk zone	Previewed for 2009: involvement in road construction and maintenance with disaster-proof techniques Continuing/expanding the READY project to further provinces Capacitate NDCC and local DCCs important, but lengthy process Continuation of capacity building for Phil. national agencies with Australian counterparts as mentors	Not aware of any specific studies/cases.. ADPC is interested in making a showcase of AusAID's approach in education and classroom reconstruction	NDCC as coordinating agency is not able to identify priorities NDCC is understaffed, local DCCs even worse → cooperation and support difficult Absorptive capacities of local structures low Much talk and little action – policy issue for government Delay in mapping process → several agencies competing for human resources

Organisation	Concept/Approach & Importance of DRM	DRM activities – in Philippines	DRM activities – in Region VIII	Planned/Future Activities	Lessons Learnt/ Best Practise	Challenges/Constraints/Problems
CDP Centre for Disaster Preparedness (NGO, Philippines)	Works with NGOs, communities and government agencies to enhance capacities in disaster preparedness, mitigation, emergency response, recovery Promotes community-oriented DRM Facilitates interactive learning and discourse on DRM Advocates for policies and programmes that protect environment and reduce poverty No involvement in emergency response	Conduct a variety of courses Produce education materials Provide consultancy services on community-based DRM Research on issues, practices, concepts Only 1 office in Manila since 1999 with 5 to 6 core staff (trained by ADPC) Are contracted by agencies to undertake capacity building mainly on grass-root level (UNICEF, World Vision, Care) Target groups are mainly local communities and LGUs	Commissioned by Plan International to work in Southern Leyte Provided training and awareness raising in 6 municipalities with focus on children but also integrate rest of community Drafted action plan that addresses vulnerabilities	Currently project with UNICEF in Bicol that focuses on education in emergencies	People already possess coping mechanisms, so all it needs is strengthening these, duplicating and institutionalising them Encourage people to form task forces on the brgy. Level independent of functionality of BDCC Long-term engagement is important Local communities also require equipment (e.g. boats)	Biggest challenge: many things exist on paper, no implementation and no compliance (too much bureaucracy) LGUs are not prepared in administrative system challenging to raise awareness (brgy. Council) DRM legislation outdated LGUs not aware of ordinances they pass Attitude

Organisation	Concept/Approach & Importance of DRM	DRM activities – in Philippines	DRM activities – in Region VIII	Planned/Future Activities	Lessons Learnt/ Best Practise	Challenges/Constraints/Problems
FAO	Follow framework of Hyogo and ISDR DRM a cross-cutting issue Emergency operations and rehabilitation division Assistance to and implementation through Department of Agriculture (DA) Focus on small farmers & fisherfolk Inputs, technical advice and capacity building through LGUs Livelihood restoration & adaptations in disaster prone area Integrated pest management Reforestation, watershed management	Technical cooperation FAO leads agriculture cluster on disaster preparedness with DA Case study on '…local institutions …reducing vulnerability to … natural disasters … sustainable livelihoods development' – Iloilo Province Emergency assistance to support food security and rural livelihoods in Region V (Bicol) - 2006 Restoring food security in typhoon-affected areas (agricultural inputs, technical assistance, 07 - 08), sustainable crop production system in coconut and abaca farming communities Information materials	Project 1: Emergency assistance for sustainable agriculture and fisheries in affected areas in Southern Leyte and CARAGA (2004), 400,000 US$ Project assisted 6000 most disaster-affected families Provision of inputs for crop production, livestock, fisheries Agro-forestry inputs for landslide-prone areas, training on agroforestry Project 2: Southern Leyte – Guinsaugon 2006; Damage and needs assessment	Enhancing community participation for disaster preparedness, livelihood and increased income Region V, US$500,000 Strengthen capacity and coordination mechanism of the DA on DRM of the provincial/ municipal level (income generating projects, community based DRM plans)	Crop insurance and adjusting cropping season in flood-prone areas Support agroforestry approach (intercropping with fruit trees, livestock) Promote open-pollinated varieties (seeds management to be sustainable)	Establishment of EWS and forecasting to be used for agriculture Within PAGASA lack of forecasting equipment and brain-drain Need for agro-meteorologists

Organisation	Concept/Approach & Importance of DRM	DRM activities – in Philippines	DRM activities – in Region VIII	Planned/Future Activities	Lessons Learnt/ Best Practise	Challenges/Constraints/Problems
GTZ	Mainstreaming DRM in decentralisation, community development, environment & resource conservation DRM "package": risk assessment – prevention & mitigation – preparedness – rehabilitation – mainstreaming Awareness raising with endangered population and policy makers Resource management and DRR DRM Sector project to promote DRM mainstreaming and financial and conceptual support activities	Ongoing: DRM in Leyte and Samar (risk mapping, training, planning, community based DRM) Emergency response Infanta (Luzon) Southern Leyte (Panaon 2002) & preparedness training Southern Leyte (Guinsaugon) Lobbying: Organising conferences on planning, DRM integration, reforming national DRM approach on national, regional and local level	Leyte, Samar (2007 – 2008) Risk mapping Early warning systems Community training Coordination communities & decision makers DRM in planning Southern Leyte / Guinsaugon 2006: Support to emergency response (rescue teams and material – German embassy and BMZ support) Support to donor and LGU coordination Panaon 2002: Emergency response, preparedness training to LGUs	Extension of mapping, EWS, training activities (so far Binahaan, Catarman, Ormoc) in Region VIII Strengthening lobbying with decision makers National conference on DRM (February 2008) Strengthening planning capacities on municipal level	Streamlining of plans is necessary (JMC 2007) Multi level approach (communities, national level) Working within existing concepts as innovations (e.g. for local funding) is long term issue requiring strong political will	Attitude change with policy makers Cooperation of agencies Local capacities

Organisation	Concept/Approach & Importance of DRM	DRM activities – in Philippines	DRM activities – in Region VIII	Planned/Future Activities	Lessons Learnt/ Best Practise	Challenges/Constraints/Problems
JICA	For long on agenda of technical cooperation – preparedness and training always part Within priority issues (implementation capacities, infrastructure, environment, livelihood & disaster prevention) Disaster relief teams & supplies Cooperation with national partners (government, LGUs, national agencies, NGOs) In infrastructure: environmental compliance incl. disaster risk evaluated according to Japanese standards	Close cooperation with DCCs, DPWH, MGB, UP, DoH, LGUs Training and support in disaster areas In 5 municipalities (Bulacan, Bataam, Pangasinan – Luzon; Dumangas – Ilo Ilo; Surigao – Mindanao) Community Based Flood Early Warning System installed: co-financed and agreed upon by the community involving volunteers Relief not the focus but integral part of their DRM approach	Southern Leyte (2006): Emergency support (tents, generators) Community based early warning for landslides (exploration, training, awareness) Geohazard mapping (with MGB) in Southern Leyte (contribution to READY) LGU training on map interpretation Physical mitigation Ormoc (1998) Flood control infrastructure (dams, retention basins, hydraulic drops, bridges) through DPWH	Installation of Doppler radar (precipitation forecast = flood early warning) in Guiuan (Samar) and Luzon Community based DRM programme (to be elaborated in 2007/2008) More structural components after merger of JICA and Japanese Bank for Cooperation and Development	Community based flood early warning system (CBFEWS) Bulacan	Planning (apart for 1st and 2nd category mun.) Governance Organisation of response

Organisation	Concept/Approach & Importance of DRM	DRM activities – in Philippines	DRM activities – in Region VIII	Planned/Future Activities	Lessons Learnt/ Best Practise	Challenges/Constraints/Problems
OXFAM	DRM important for the humanitarian programme, but no 100% coherent strategy, rather a range of ideas (lahar mapping, flood-related crop insurance schemes with local NGOs, advocacy, partnerships with academia or the private sector, video production for sensitisation of school kids)	Albay, Bicol: documentation of institutionalisation of work of disaster management office (DIPECHO-funded) With Social Action Centre (SAC) in Albay creation of a "parish disaster coordinating council" via the civil society and church rather than government structures (initiated 2007) With SAC in Legazpi, Bicol, initiative for flood-related crop insurance schemes for 60 coconut and vegetable farmers in the region, (August 2007-2008)	Hardly engaged in Region VIII, focus more on Mindanao (poverty, conflict) and Bicol (DRM) After St. Bernard landslide (Guinsaugon): three-week response operation, then 1-year support of AusAID rehab project (finished 2007)	For Bicol: strategic planning ongoing: disaster risk reduction (DRR) and community based disaster risk management (CBDRM) to be integrated in concept of "living university" with aim of exchanging ideas and knowledge management.	Gathering data on disaster-related case studies. Aim is to produce booklets and a video	Not easy for LGUs at risk to obtain support from government agencies for DRM Consciousness towards disasters crumbles if disasters not occur regularly Financial and knowledge issue: not familiar to LGUs how they can use e.g. their health or education budget for proactive DRM-measures

Organisation	Concept/Approach & Importance of DRM	DRM activities – in Philippines	DRM activities – in Region VIII	Planned/Future Activities	Lessons Learnt/ Best Practise	Challenges/Constraints/Problems
PNRC Philippine National Red Cross	Disaster Management Services is one of the major services provided DMS contains disaster preparedness, relief, rehabilitation Provide DRM training nationwide in areas at risk Training of trainers Focus is on capacity building on brgy. Level Target groups school children, local communities, municipalities, companies Funded by nat. and int. donations DRM focus already on preparedness, will be intensified	Only NGO in NDCC, important in preparedness & response Variety of training courses (DRM, first aid, tech. Training) & refresher training Training in risk and hazard mapping Deploy disaster response teams Assist in formation of brgy. Disaster action teams Assist in drafting brgy. Disaster preparedness plans Rely heavily on brgy. Voluntary structures (therefore often criticised) Cooperate in disaster consciousness months (mainly in schools) Do not provide equipment		New campaign 'I love Red Cross' aims to train 43 volunteers in every brgy. (9 volunteers, 9 health and welfare workers, 25 blood donors)	People are generally enthusiastic about PNRC activities People empowerment is important	Local communities need to get involved more Government needs to become better prepared and more proactive

Organisation	Concept/Approach & Importance of DRM	DRM activities – in Philippines	DRM activities – in Region VIII	Planned/Future Activities	Lessons Learnt/ Best Practise	Challenges/ Constraints/ Problems
UNDP	DRM is under environment portfolio, is becoming a big area wants to fit into national DRM structures, be partner for NDCC → ownership doesn't want to establish any top-down networks → BDCCs should be the core unit as first responders in case of disasters.	P: since 2000 involvement in DRM: media project on disaster awareness Mitigation of Mayon Volcano eruption in 2000 and 2001 strengthening Crustal Stress Community Awareness Network (CSCAN) 2002 UN-ISDR is supporting Strategic National Action Plan (SNAP) High Risk Mapping and Assessment for Effective Community disaster Risk Management (**"READY-project"**): coordinated and co-funded by UNDP → EWS installed in Surigao (2006) → UNDP provides technical advisors for READY and can channel resources	READY: EWS installed in Leyte and Southern Leyte (2007), not yet in Samar. Base maps for Surigao, Leyte and Southern Leyte produced but not printed yet.	EWS in Samar previewed for 2008 extension of the READY project to a nationwide scale possible in 2008 Spanish-funded climate change adaptation programme is previewed for the areas in which the READY-project is being implemented envisioned to have a good mapping base not only for DRM but also for environmental projects. Environment and DRM are to be linked more closely	From the tsunami-hit countries a template on how to document lessons learnt can be obtained There are meetings on international level to share experiences, but Philippines are a net exporter of disaster-related experiences	Data is the biggest challenge for the location of evacuation sites 1:10.000-maps are needed. Mapping process is both a top-down and bottom-up process general lack of disaster managers in the LGUs → capacity gaps in national institutions: lack of tools, equipment, software and training

Organisation	Concept/Approach & Importance of DRM	DRM activities – in Philippines	DRM activities – in Region VIII	Planned/Future Activities	Lessons Learnt/ Best Practise	Challenges/Constraints/Problems
WHO	UN cluster approach: adopted by UN country team and adopted by NDCC → WHO and NDCC are working together for preparedness	WHO works on national level: assessments for disaster response; filling gaps (formal, technical, emergency medical supplies; capacities); coordination during/ after disaster, repair of health equipment in hospitals; capacity building (also policy guidelines and further education of key persons of the DoH abroad) Hospitals (even private ones) were asked to set up a disaster preparedness plan, the health emergency management support (HEMS) units helped them to set up a checklist	after Guinsaugon landslide: post-incidence-evaluation and 3-day-training workshops for LGUs		Funds national conventions with international participants, producing some lessons learnt and best practise examples	Department of Health (DoH) is dedicated, but with limited absorption capacity Coordination within DoH Human resource problem in health sector due to poor salaries and brain drain Interest in DRM on local level grows after disaster incidence Risk management to be cross-sectoral. Coordination needed for linking health- and other sectors; Financial resources scarce

Organisation	Concept/Approach & Importance of DRM	DRM activities – in Philippines	DRM activities – in Region VIII	Planned/Future Activities	Lessons Learnt/ Best Practise	Challenges/Constraints/Problems
World Bank	Focus on reconstruction, rehabilitation and preparedness, not emergencies Projects are typically large-scale, e.g. infrastructure DRM not explicitly integrated systematically within WB projects as a cross-cutting issue	so far no direct involvement in DRM; WB works more in the social sector (health & education) within the Philippine Development Forum emergency recovery loan for Bicol World Bank Institute runs an **online course** "Comprehensive Natural Disaster Risk Management Framework"that is a joint offering with Natural Disaster Coordinating Council (NDCC) and the Earthquakes and Megacities Initiative (EMI)	none	Developing approach towards DRM: it has to be multi-sectoral and multi-level A rice growing & climate change project is planned for 2008 Global Facility for Disaster Reduction and Recovery (GFDRR - new facility), UN-ISDR provides approach, Philippines to become a focus country		Affected communities rely on relief too much: lack of incentives Absorption capacities of national institutions are very limited Bank can finance resettlement and reallocation, but problematic because then governors might lose their voters/barangays

VIII International agencies and their engagement in DRM in the Philippines

The devastations caused by disasters constitute considerable disruptions or setbacks in development achievements and for the economy, drawing governments' financial resources away from investments in education, health, or other sectors crucial for long term sustainable development to short term emergency aid, rehabilitation and reconstruction measures. The importance of disaster management has therefore come to be widely acknowledged in international development cooperation. The concepts of different donor agencies have in common a shift of focus from a more technical view of the hazard side to the vulnerability side of the disaster risk equation, with the emphasis on risk management/risk reduction *before* a disaster rather than on the response side of disaster management.

DRM concepts and approaches

DRM has been shifting into the focus of attention of international donor agencies over the last decade. Today it is widely recognised that the Millennium Development Goals cannot be achieved without increasing efforts in DRM. Five of the eight MDGs show close connections with the need to reduce the impact of natural disasters (GTZ 2005: 24). The focus of interventions is increasingly shifting from response, relief and rehabilitation to prevention, mitigation and preparedness, with all interviewed agencies highlighting the importance of these latter DRM aspects.[65]

All of the interviewed agencies stated that they were involved in DRM-related projects to some degree, with the strongest involvement in the Philippines coming from the United Nations Development Programme (UNDP) (through the READY Project, see text box in main section) and GTZ. While the main trigger for getting involved in DRM are still calamities (e.g. after the landslide in Guinsaugon), most agencies aim at a long-term engagement following the disaster in order to establish effective prevention and preparedness structures. For most agencies, DRM was a cross-cutting issue that is increasingly integrated in all of their programmes, with only the Asian Development Bank (ADB) explicitly mentioning that DRM was currently not considered as cross-cutting in their country portfolio. Different agencies are focusing on different aspects of DRM and provide their support through different structures:

[65] The United Nations declared the 1990s the "International Decade for Natural Disaster Reduction" (IDNDR) and put in place the inter-agency secretariat for the coordination of the "International Strategy for Disaster Reduction" (ISDR). The UN World Conferences on Disaster Reduction in Yokohama (1994), and Kobe (2005), proclaimed the "Hyogo Framework for Action".

- **UNDP** aims at strengthening national DRM structures and works in close cooperation with the NDCC (see textbox),
- **GTZ** works both on national level where it lobbies for an integration of DRM as a crosscutting issue into national guidelines and on local level where it sets an example in its area of DRM intervention,
- the Japanese International Cooperation Agency (**JICA**), currently the biggest international donor in the Philippines, acts through national partners and focuses on preparedness measures, especially capacity development, but also on relief,
- Australian Aid (**AusAID**), due to a lack of staff in the Philippines, carries out DRM-related projects through international partners (i.e. UNDP, Oxfam),
- the **World Bank** works mainly on the macro-level, being involved in the financing of large infrastructure projects,
- **FAO** implements their projects through the Department of Agriculture and specialises in livelihood adaptations for farmers and fisher communities in disaster-prone areas, and
- interviewed **international NG**Os are mainly working with local communities in strengthening their disaster preparedness and response structures.

Institutionalising the "Cluster Approach" in the Philippine DRM system

Whilst the overall strategy to DRM is being reviewed, immediate action is taken to streamline and optimise the response system. The NDCC agreed in cooperation with an Inter Agency Standing Committee (IASC) on institutionalising the "Cluster Approach" in the Philippines, designating lead agencies and IASC counterparts for 11 distinct clusters connected to disaster response to complement the existing structure. Whilst the first focus lies in optimising the response capacities, the overall aim is to cover the entire spectrum of prevention and mitigation, preparedness, response and rehabilitation. (UN OCHA 2007:2)

In a first step, cluster preparedness plans are being elaborated, specifying responsibilities, operational regulations and communication lines. The main aim is to clarify responsibilities, thus helping third actors to contribute most effectively before, during and after disasters. The leads of the clusters are to craft operational strategies in pre- and post-event phases, to facilitate a process for a well-coordinated humanitarian response and to ensure continuous improvement in the implementation by continuous monitoring and reporting.

International agencies working in Region VIII

The bulk of international attention concerning DRM in Region VIII still lies in Southern Leyte. In the research region (Leyte, Northern Samar), GTZ is the international lead agency in comprehensive disaster risk management. The nation wide READY project aiming at strengthening community resilience based on hazard maps and trainings works currently in Leyte island and previews to shift to Samar in 2008. (see textbox)

In Region VIII, the Ormoc flash flood and related mudslides in 1991 that killed about 8,000 people caused a first inflow of international donors to provide relief and

rehabilitation assistance. Among them was mainly JICA that assisted in establishing a flood control programme The GTZ assisted in equipping and training emergency response teams.

A more recent trigger for several international donors to get involved in DRM in Region VIII, was the landslide in barangay Guinsaugon, San Bernhard, in Southern Leyte, in February 2006, that claimed the lives of an estimated 1,800 Filipinos. This particular disaster caused a rush of a number of donors to the region, so that it was difficult at times to coordinate efforts.[66] Here only a very brief overview can be given:

- The **German embassy** channelled funds and relief goods through GTZ for immediate search and rescue and evacuation. **GTZ** further assisted in the setting up and management of camps and in donor coordination (funded by its DRM sector project) and later assisted in the establishment of Southern Leyte Response Teams (SOLERT).
- **JICA** provided immediate relief after the Guinsaugon disaster and then got engaged in longer-term activities such as hazard mapping in cooperation with MGB (with maps to be handed over to the READY project) and information campaigns with barangays based on the maps, exploration of physical mitigation measures and research on early warning systems for landslides.
- **CARE** arrived in Southern Leyte instantly after the disaster and helped in emergency assessments, camp management, coordination of donor activities and drafting of rehabilitation master plans. They later got engaged in setting up early warning systems in cooperation with the READY project.
- The World Health Organisation (**WHO**) carried out a post-incidence evaluation and training workshops for LGUs.
- **AusAID**, supported by **OXFAM**, assisted with a grant for rehabilitation that was mainly used for the construction of new housing areas.
- The Centre for Disaster Preparedness (**CDP**), a local NGO, was commissioned by PLAN International to provide training and raise awareness in 6 municipalities and supervised the drafting of action plans to address vulnerabilities.
- **ADB** was involved in the Southern Leyte Response Programme (SLRP) and together with **JICA** in the Southern Leyte Landslide Disaster Programme (SLLDP). The latter helped in reconstructing classrooms and roads and in capacity building for LGUs.

[66] From all of the interviewed international agencies only FAO and the World Bank were not engaged in Southern Leyte. Save the Children could not be interviewed but is known to work in the region.

At present, international donors still engaged in Southern Leyte include ADB, Save the Children, CARE and JICA. Their projects are focusing mainly on building long-term community resilience to disasters. CARE's ACCORD programme is financed by DIPECHO funding and is focusing on community-based disaster preparedness. ADB supports the establishment of a provincial disaster management office and municipal response teams. JICA is continuing their mapping and community awareness activities. Other agencies have withdrawn and are now mainly focusing on the Bicol region, on the establishment of databanks for better knowledge management (Access for Communication for Health in the Eastern Visayas) or, as in the case of GTZ, watersheds in Leyte and Northern Samar.

The long-term engagement of international donors in Southern Leyte reflects the paradigm shift within international cooperation and is a good example for how short-term relief operation can serve as entry point for strengthening disaster preparedness and prevention capabilities of communities since they are highly sensitised to the need of mitigating disaster effects. If good practices could be established in such communities, they can then serve as an example and orientation for other communities in the region.

The landslide in Guinsaugon was also a main trigger for the READY project, the largest DRM project funded by international donors in Region VIII and one of the most important country-wide. The implementation, lies mainly with national agencies. An overview and brief evaluation of the project is given in textbox 3 in the main section.

IX Selected relevant DRM studies

Document	Organisations / Year	Content	Recommendations / Lessons Learnt
Natural Disaster Risk Management in the Philippines: enhancing poverty alleviation through disaster reduction.	World Bank & NDCC	General overview of the Philippine DRM system Assessment of the disaster management capacity Mechanisms for risk sharing and transfer (insurances, credit facilities)	Government of the Philippines should develop a national framework for comprehensive DRM Emphasize a more bottom-up approach in DRM Improve coordination among actors Produce hazard and vulnerability maps for major natural hazards Improve capacity for damage and needs assessment Integrate environmental disasters into risk management framework Consider consolidating elements of the disaster management system Development of fiscal incentives for proactive risk management at the LGU level Explore contingent credit facilities and the potential for a Philippine Catastrophe Insurance Pool (PCIP)

Document	Organisations / Year	Content	Recommendations / Lessons Learnt
Learning from the World Bank's experience of natural disaster related assistance.	Gilbert & Kreimer (1999) World Bank	General overview, not country-specific Assistance after natural disasters Mitigation before disaster strikes Priority issues in DRM today	The following priority areas for DRM are addressed: Natural disaster mitigation within a market economy Getting incentives for disaster mitigation right Incorporating natural disaster mitigation into project design The role of cost sharing and cost recovery Disaster risk transfer and financing Costs and benefits of natural disaster management Incorporating disaster management into development planning
The role of local institutions in reducing vulnerability to recurrent natural disasters and in sustainable livelihoods development	Battista & Baas (2004) FAO	Case study on the comparative strengths of local institutions in DRM in the Philippines and Mozambique Focus on Ilo-Ilo province, Panay Island Good overview of DRM actors on local level provided	Local institutions derive their strengths from proximity, responsiveness to social pressures and adaptation Hazard risks need to be linked with natural resource management and economic and social resilience Local institutions need the appropriate frameworks/enabling environments to function Effective action on local level requires a mandate and a revenue system that allows for resource mobilization at the local level DRM requires a combined 'bottom-up' and 'top-down' approach Exceptional/extreme events require support from national government Agricultural risk adaptation practices are better managed through conventional technical assistance/transfer Partnerships between local government, private sector, NGOs and community groups are more effective and need fostering Mitigation measures require support from formal institutions Social capital is the key factor ensuring immediate responses to disasters Emergency relief operations can but used to facilitate the recognition of the role of local social capital

Document	Organisations / Year	Content	Recommendations / Lessons Learnt
The role of local institutions in reducing vulnerability to recurrent natural disasters and in sustainable livelihoods development	Bass, S. (2006) ADPC, FAO	Case study on the involvement of local institutions in DRM in Ilo-Ilo province, Panay Island, Philippines (same case study as above but focus exclusively on Philippines)	Local institutions demonstrated efficient disaster preparedness and response delivery The empowerment of local institutions through national policies promoted the establishment of an on-site disaster management system The informal social networks provided mechanisms to take car of most vulnerable households but had also limitations Local institutions established successfully a mechanism for contingency funding for reconstruction recovery Local institutions have established a system to respond to highly localized but devastating disasters, to which national institutions do not respond Local institutions demonstrated a creative use of local resources and operated cost effective Local institutions created and sustained an inclusive participatory institutional system for effective disaster management

Document	Organisations / Year	Content	Recommendations / Lessons Learnt
Comprehensive risk management by communities and local government	Jinon, R. ADPC	Case study investigating institutional aspects on DRM, capacity building and technical assistance on the local level Analysis of the Philippine DRM system Regional focus on Negros Oriental, Western Visayas (region VI); Albay Province, Bicol; Central Luzon	Community-based DRM must be streamlined into the implementing mechanisms of the National Disaster and Calamities Preparedness Plan (NDCPP), this will afford a closer collaboration between LGU and NGO in providing support mechanisms to community-based organisations At the barangay level, community-based organisations could play a pro-active role The participatory risk assessment should be integrated in the decision-making process and project prioritisation Risk perception is considerably influenced by available information, communities without access to information on hazards have lower perceptions of risk Pubic awareness raising, using participatory risk assessment, indigenous knowledge, and scientific data in a popular manner is an important risk reduction measure

X Typhoons affecting Region VIII

Year	Month /date	Name of typhoon	Distance of the typhoon centre from Tacloban
2006	December 9th	Sinyang	11km N
	September 27th	Milenyo	140 km N
	June 24th	Doming	130 km SW
	May 11th	Caloy	90 km N
	January 23rd	Agatun	170 km N
2005	March 16th	Auring	6 km (over Palo!)
	November 13th	Piping	376 km N
2004	December 2nd	Yoyung	150 km NE
	November 28th	Winnie	110 km NE
	September 16th	Pablo	80 km SW
	June 9th	Jener	very close, over Dulag
	May 16th	Dindo	150 km NE
	March 19th	Butchoy	170 km NE
1994	December	Garding	
1990	November	Ruping	
1988	November	Yuning	

Typhoons affecting Region VIII 2004 – 2007 (PAGASA office Tacloban)

XI Actors in DRM on local level

	Level	Pre-disaster		During disaster	Post-disaster
		Long term	**Short term**		
Barangay	LGU	*BHW:* Data collection, carry out a kind of VA (e.g. Baybay, C-WS) *BDCC:* Stockpiling of clothes and goods	*Barangay officials and tanods:* Information dissemination (warnings)	*Barangay officials:* Assessment of damages; *BHW:* First aid	*Barangay officials:* Assessment of damages to DSWD, DILG, PDCC
	Others	*Families:* - houses built on stilts - new concrete houses with raised windows and doors (mun. Palo, Binahaan WS) - protecting roofs before typhoons		*Neighbourhood:* mutual assistance with medicine and food *Head of family* *Relatives* People go to relatives in safe areas *Volunteer group* (like for fire brigade that also exists during flood; Palo, mun.)	*Neighbourhood:* mutual assistance with medicine and food (Pintakasi) and Bayanihan: (community work) *Residents:* - out-migration (pers. comm.. Cangumbang and Polangi)
Municipal	LGU				*MSWDO, MEO, MAO, MPDO:* damage assessment *MAO:* distribution of seeds and farm inputs *MEO*: involved in re-construction *MSWDO*: food and clothes, shelter, nipa jingles

	Level	Pre-disaster		During disaster	Post-disaster
		Long term	**Short term**		
	Others		*Radio stations:* (DYSM in Catarman WS) warnings	*Radio stations:* Information on situation	
Provincial	LGU	*PDCC*: awareness seminars			*PDCC:* Relief goods, financial help
	Others		*PAGASA:* Early warning of key persons and institutions		*PSWDO* (Northern Samar): Core shelter programme
Regional and National	Gov.	*DOST agencies:* mapping activities (e.g. erosion potential map); cooperation with DCC's for awareness seminars		*OCD:* Transportation	*NFA:* Assistance with rice *Regional Social Security Systems (RSSS)* give out calamity loans to affected people
	others		*TV stations:* Information (ABC, CBN)		*Church and religious groups:* food, clothes
Inter-nation					*Plan Philippines:* Relief goods

Results of focus group discussions on *barangay* and municipal level

XII Planning situation in research area

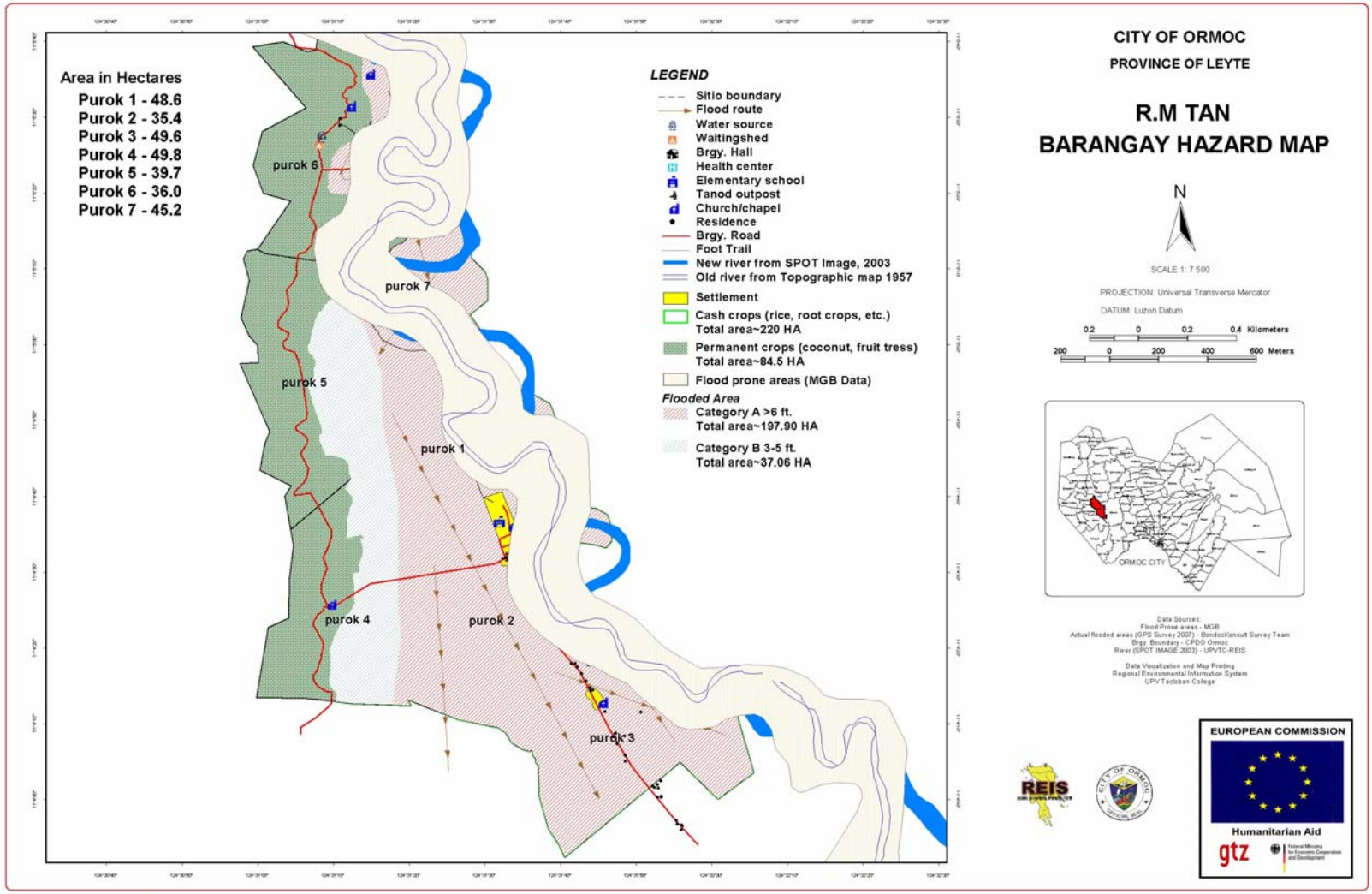
LGU	Plans	Used tools	Actors involved
Leyte Province	PPFP (2000 - 2009)	LGPMS SWOT	Governor PPDO MPDOs Barangay officials PDCCs region VIII NEDA
Palo Municipality	ELA CLUP* AIP	LGPMS CBMS (7 brgys)	Different sectors 33 brgy. captains NGOs DILG NEDA
Tanauan Municipality	CLUP* AIP	LUBBDP (15 out of 54 brgys) CBMS	All sectors All brgy. captains DOE
Dagami Municipality	Municipal profile AIP* Socio-economic profile* CLUP*	LUBBDP	All sectors All brgy. captains 7 NGOs Private sector HLURB
Pastrana Municipality	AIP	LUBBDP (3 brgys)	All sectors
Barangay Cabarasan Guti	None	None	Barangay council
Barangay Cangumbang	3 year brgy development plan* AIP*	None	Barangay council Mayor MPDO
Barangay St. Nino	5 year project plan* Statement of Income and Expenditures	Monitoring of pre-scholar malnutrition	Barangay council
Barangay Balud	AIP Statement of Income and Expenditures	CBMS Dimension of Poverty Spot map	Barangay council
Barangay Malaguicay	AIP* Statement of Income and Expenditures	CBMS Dimension of Poverty Base map	Barangay council
Barangay Canlingga	AIP*	None	Barangay council Municipality

LGU	Plans	Used tools	Actors involved
Barangay Rizal	AIP* Livelihood plan*	None	Barangay council
Barangay Lourdes	AIP*	None	Barangay council Mayor
North Samar Province	PPFP (2004-2013) Provincial Strategic Development Plan (5 years)* AIPs*	SWOT	Provincial Management Team Technical Working Groups of all sectors Provincial Development Council Provincial Land Use Committee Core Planning Team
Catarman Municipality	AIP CLUP	SWOT CBMS (30 out of 50 barangays) BDPPRA	All sectors TWG All brgy. captains NGOs National and provincial actors
Lope de Vega Municipality	CLUP (2001-2010)	CBMS BDPPRA	All sectors Mayor NGOs, Pos Barangay captains DILG
Barangay Abad Santos	AIP	None	Barangay council General assembly
Barangay Polangi	None	Spot Map Planning workshops CBMS (in process)	Brgy. development council Plan Philippines
Barangay Baybay	AIP*	Vulnerability analysis	Brgy. development council BHW
Barangay Somoge	AIP	Spot Map CBMS	Barangay council General assembly Province Municipality National level Plan Phil. / NGO DENR & DA

LGU	Plans	Used tools	Actors involved
Barangay Poblacion Lope de Vega	AIP	CBMS	Barangay Council General Assembly Representative of municipal executive council
Barangay Bayho	None	None	Brgy. development council

*Documents were not reviewed because they were not committed

XIII Example of a barangay hazard map showing the flood-prone area



XIV Excerpt from Initial Environmental Examination (IEE)

Checklist for infrastructure projects: description of project surroundings / physical environment

Components/Parameters	**Answers**		**Remarks**
	Yes	No	
What is the general elevation of the project area? < 100 masl 100-300 masl 301-500 masl 501-1,000 masl 1001-1500 masl >1,500 masl (To determine elevation, refer to the topographic map where the elevation per contour line is indicated)			(indicate the area per elevation range or estimate the % to total area)
Slope and topography of the area Terrain is flat or level (0-3% slope)? Gently sloping to undulating (3-8% slope)? Undulating to rolling (8-1830% slope)? Rolling to moderately steep (18-30% slope)? Steeply sloping (30-50% slope)? Very steep to mountainous (>50% slope)?			(indicating the area per slope category or estimate the % to total area)
Are there areas in the site where indications of soil erosion are occurring? If yes, what activities are causing erosion?			Causes of erosion: [ ] heavy rains [ ] unstable slopes [ ] others, pls. specify _____ _____
Do you know of any landsliding occurring or that has occurred in the site?			Causes of landslide: [ ] earthquake [ ] unstable slopes [ ] earthmoving [ ] others, pls.

Components/Parameters	**Answers**		**Remarks**
	Yes	No	
			Specify _____ _____
Has the area experienced any flooding during the wet season or typhoons? If yes, when was the last time the area was flooded? What caused the flooding?			Period(s) of flooding: _____ _____ Causes of flooding: [ ] low area/elevation [ ] poor drainage [ ] water logged area
Soil type of the area: [ ] sandy soil [ ] clayey soil [ ] sandy loam soil			Other soil types: _____ _____
Is there an access road going to the project site? If yes, what is its distance to the site _____km			Type of access road:
Does the site conform to the approved land use plan of the city/municipality?			
Are there existing structures or developments around the project site? If yes, please list them in the space below or in the opposite space.			

What is the present land use of the area?

[ ] Prime Agriculture Land [ ] Orchard
[ ] Grassland [ ] Marshland/Mangrove
[ ] Built-up [ ] Fishpond
[ ] Others, pls. specify _____

XV Disaster Preparedness Plans in research area

	Northern Samar Province	Catarman Municipality	Palo Municipality
Pre-emergency phase	Conduct DRM and family preparedness seminars to 50 vulnerable barangays PDCC meetings Public information campaign Drills and exercises for the first and second district Maintenance of fire trucks, ambulance and further equipment Stockpiling of rice, mats and blanket assistance	Reactive and strengthen Barangay Disaster Coordination Councils (BDCCs) Provide trainings and information drive on disaster preparedness Provide means of supervision, direction, control and communication Establish a warning system for disaster preparedness purposes Designate evacuation centres and a municipal disaster operation centre Organize a disaster functional task force volunteer brigade Stockpiling	Re-activation of MDCC Conduct information drives on disaster prevention & preparedness Organisation and training of BDCC Survey of disaster-prone areas / families Continuous practice / drills on rescue operation Stockpiling of supplies needed Purchase of equipment needed by relief committee (calamity fund) Inspection of the status condition of existing disaster control structures (dikes, drainage, river embankments) Identification of potential evacuation centres in barangays
Emergency phase	Relief and medical assistance	Rescue and evacuation Food, health and medical assistance	Recommend for evacuation Assist disaster victims (food, shelter) / rescue activities Monitor the status of existing disaster control structures
Post-emergency phase	Project rehabilitation implementation	Damage assessment reports Repair of damaged structures Temporary settlement for evacuees, likewise food, clothing etc.	Post-emergency report Inventory of assistance given

XVI Existing and needed capacities on LGU level

			Prevention capacities	Preparedness capacities	Response capacities
Barangay level	Physical/material	Existing	Diversified agriculture (vulnerable & insufficient) River & road protection (rare, insufficient) Irrigation (clogged, destroyed, insufficient) Privately initiated river protection (rare) Crop insurance (<10%)	Evacuation centres/areas Early warning: observation, radio & officials Drills (preparedness, rescue & relief-rare) Self-help: Securing houses & property	Skills for building emergency shelters Skills for rehabilitation Bankas for some evacuation & relief Credit “sharks” & land owners for short term borrowing
		Needed	Flood resistant infrastructure, flood control Drainage & de-clogging Forrest & solid waste management Diversification of livelihood / Crop insurance	Improved evacuation centres (sanitary facilities, first aid, cooking) Refresher trainings in rescue and first aid Technical training: timing the planting	Funds for rehabilitation Boats and vehicles (rescue and relief) Gadgets for emergency communication & action teams (lamps, raincoats, boots)
	Social/organisational	Existing	Voluntary mutual assistance (pintakasi) for drainage maintenance (rare) Neighbourhood support for self-organised river control (rare)	Barangay council & officials Public early warning (not everyone is informed) Stockpiling food & material for one/two days Disaster preparedness plans (2 of 14 brgys)	BDCC (8 of 14 brgys) Calamity Fund Family & neighbourhood support (bayanihan) Pintakasi Support from municiaplity & province (late) NGO support, donations (private charity)
		Needed	Funds for prevention measures Training/seminars on prevention / mitigation Enforcing codes and ordinances Long term: Disaster education at school	Organising & capacitating BDCC (11/14) Preparedness plans Trained volunteers Stock piling food & material Communication within brgy & with mun.	More funds for relief (CF insufficient) Information on use of CF Clear responsibilities Better communication: BDCC & population Reporting: coordination with P/MDCC
	Attitudinal	Exist	Pro-active when affordable and urgent Wait & see / day-to-day thinking	Wait & see / day-to-day thinking	Self-organised response
		Needed	Awareness & motivation for self-organised mitigation Values & mindset, e.g. landuse (farmers), leadership (captain)	Forward planning among population (savings)	Strengthened self-help capcaities

			Prevention capacities	Preparedness capacities	Response capacities
Municipal level	Physical/material	Existing	Diverse economies & tax revenues (insufficient) Livelihood Programmes Reforestation (DENR) Irrigation and drainage (insufficient) Research/maps on hazard prone areas (initiated)	Early warning organised in Binahaan watershed	Emergency material (boats, food) Basic health centres Responsibilities: MSWDO (relief,) NFA/ MAO (rice, seeds, farm inputs) Assistance from OCD (heavy machinery)
		Needed	Comprehensive watershed management – coordination with neighbours Sea walls, river control Drainage system	Drafting & implementing preparedness plan Refresher training in rescue and relief Identification of hazard prone areas (landslides)	Transportation means and heavy machinery Equipment for rescue (life vests, stretchers, first aid material) Fire trucks and hydrants
	Social/organisational	Existing	ECC, building codes, zoning ordinances (not widely applied)	Active MDCC (3 out of 6) Mayor as focal point and driving force Preparedness plans (2 out of 6) Parts of Calamity Fund for preparedness Volunteer fire brigade, police department	Calamity Fund MSWDO (trained by OCD) MDCC receiving reports from barangays and organising relief and rehabilitation
		Needed	Enforcement of laws and regulations Integration of DRM into planning Coordination of prov., municip. & brgys Knowledge how to train barangays Handing over of positions, & information	Strengthening/reorganising MDCC Operation centre / DRM focal person Disaster Preparedness Plan (4 out of 6) Knowledge how to organise BDCC Volunteers to support MDCC	Disaster trainings for: MSWDO, MPDC, MAO, MBO, MEO, PNP → training of trainers to capacitate barangays Detailed maps of barangays for better targeting assistance
	Attitudinal	Exist	Attitude shift towards prevention (beginning) Local Chief Executive is decisive for pushing DRM	Beginning shift of DRM understanding to preparedness	Committed energetic administration Culture of response
		Needed	Training on holistic DRM concept Long-term vision Overcoming wait-&-see attitude	Illustrating economic advantages of proactive approach	Strengthen sense of responsibility vis-à-vis the barangay level

			Prevention capacities	Preparedness capacities	Response capacities
Province level	Physical/material	Existing	Prevention & mitigation capacities	Preparedness capacities	Response capacities
		Needed	Studies on watershed management (insufficient) Research agencies Planned flood control projects (still not implemented) Core Shelter Assistance & Livelihood programs (marginal)	Trainings for Disaster Preparedness to MSWDO (PSWDO) Assisting MDCCs in formulating disaster preparedness plans	Heavy material → logistic support Damage & need survey (PDMU & PSWDO) Delivery of food (PDMU) (only last for two days) Emergency & medical rescue (PDMU)
	Social/organisational	Existing	More funds for core shelter & livelihood Inventory of watersheds and forests River control (funding) Efficient irrigation system Geo-hazard mapping (GIS trainings and equipment)	Drills (earthquakes & fire)	Additional stocks of food and relief materials
		Needed	Rules & regulations Communication with NGOs	PDCC Permanent office and budget: PDMU (Northern Samar) Provincial disaster management plan (Northern Samar)	PDCC Calamity Fund (Local Chief Executive decides on use) Coordination with OCD, international organisations
	Attitudinal	Exist	Integration of DRM into planning → mainstreaming into long-term planning PDMU participates in planning Communication between municipality & province	Improving PDCC functionality Trainings to organize M/ BDCCs Integrating disaster preparedness plans	Communication between barangay, municipality & PDCC
		Needed	Attitude shift towards prevention / mitigation Thrusts from national & regional level		

XVII Content of Capacity Development modules

Type: BDRMM for Barangay Level – Barangay Disaster Coordination Council / Barangay Action Team (BAT): Barangay officials, volunteers				
Overall objectives: **Preparedness capacities** of barangay are improved ; **Disaster prevention and preparedness plan** exists and is operational				
Agency		Components/Content of training	Objectives	Remarks
MDCC/MAT	Awareness	General concept of DRM	Awareness raising with decision makers and population to strengthen self-help capacities	Stressing social and economic advantages of prevention and mitigation
MDCC/MAT	Awareness	Vulnerability and capacity analysis (including participatory risk identification and mapping)	Detailed hazard analysis for barangay Detailed knowledge about vulnerability Awareness	Identification of hazard prone areas, capacities, livelihood, Inventory of medicine stock, evacuation centres / routes, rescue & shelter materials, transportation
MDCC/MAT	Capacity development	Identification of responsibilities and communication lines	Reorganisation of BDCC	Organisation of residents into special groups for self-help Mutual assistance agreements with other barangays Quick damage report, including damaged crops
PAGASA	Capacity development	Interpretation of warning signs/early warning system	Improved early warning for the community Background knowledge about hazards	Dissemination of alert signals regarding different types of hazards and levels of warning
OCD MSWDO	Capacity development	Evacuation: what to prepare, where to go	Improved self-help capacities (i.e stockpiling) Better coordinated evacuation	Check on evacuation centre and upgrade if possible
OCD, DILG	Capacity development	Search & rescue	Reduce casualties & better service delivery	Including PNP, fire brigade, volunteers
MGSO	Capacity development	Shelter construction	Improved self-help capacities	Needed when evacuation centres are insufficient
MHW, PNRC	Capacity development	First aid, preventive health care	Less casualties (i.e. reduce risk of epidemics)	Mainly for BHW, possibly for *tanods*, and volunteers
Dedu	Capacity development	Public education (schools)	Feedback into families Improved self-help capacities of children	Long term effects on society level
MDCC/MAT and BDCC	Capacity development	Drafting of preparedness plan	Operational disaster prevention and preparedness plan	Risk analysis, EWS guidelines, multi-hazard evacuation & contingency plan, responsibilities & communication, prevention
OCD, BDCC MDCC/MAT,	Capacity development	Rehearsals/drills	Application of knowledge Monitoring if plan is operational	Including barangay population Regular rehearsals

Type: BDRMM+ for Municipal Disaster Coordination Council / Municipality Action Team (MAT): MPDO, MSWDO, MOE, MOA, DBM, DILG,				
Objective 1: **Preparedness capacities** of municipality are improved ; **disaster prevention and preparedness plan** exists and is operational.				
Agency		Components/Content of training	Objectives	Remarks
GTZ, IIRR	Awareness	General concept of DRM	Awareness raising Self-help capacities	Stressing social and economic advantages of prevention and mitigation;
GTZ, IIRR, Care, Oxfam, REIS …	Awareness	Vulnerability and capacity analysis (including participatory risk identification and mapping)	Detailed hazard and Vulnerability analysis Awareness To be included in DPPP	Identification of hazard prone areas, capacities, livelihood, Inventory of medicine stock, evacuation centres / routes, rescue & shelter materials, transportation
GTZ, IIRR	Capacity development	Identification of responsibilities and communication lines,	Reorganisation of MDCC To be included in DPPP	Assigning and training focal person within MDCC/MAT Organisation of barangay focal persons (BAO) Mutual assistance agreements with other municipalities Leadership succession
GTZ, IIRR	Capacity development	Identification of communication lines; reporting,	Establishing easy and comprehensive reporting procedures Effective communication is organised	The municipal level is vital in linking the different LGUs. This should be done by: • monitoring & analysing damage reports and drafting contingency plans (communication mun. & *barangays*) • drafting a comprehensive damage & need assessment to be forwarded to the PDMU (communication mun. & province)
PAGASA	Capacity development	Dissemination of warnings	Improved early warning for the community To be included in DPPP	Dissemination of alert signals regarding different types of hazards and levels of warning
OCD, PSWDO, DOH	Capacity development	Large scale evacuation & support	Better coordinated evacuation Advance stockpiling To be included in DPPP	Check on evacuation centres and upgrade if necessary Focus on access/evacuation roads Supply of food, medical equipment and shelter materials
OCD, DILG	Capacity development	Search & rescue	Reduce casualties (better assistance delivery)	Including PNP, fire brigade, volunteers
GTZ	Capacity development	Drafting of preparedness plan	A disaster preparedness plan exists and is operational	Risk analysis, EWS guidelines, multi-hazard evacuation & contingency plan, responsibilities & communication, prevention
OCD, DILG, (PDMU)	Capacity development	Rehearsals/drills	Application of knowledge Monitoring if plan is operational	Including population Regular rehearsals

Type: BDRMM+ (continued) for: MDCC / Municipal level – Municipal Action Team: MPDO, MSWDO, MOE, MOA, DBM, DILG				
Oobjective 2: Capacitate MDCC/MAT to conduct disaster risk management processes on barangay level, leading to disaster prevention and preparedness plan and enhanced preparedness and response capacities (all components design as training for trainers)				
Agency		Components/Content of training	Objectives: MAT members are able to	Remarks
Agencies specialized on participatory trainings	Awareness	Facilitation of preparedness and reponse components	Facilitate groups sessions	Components: Early Warning, Evacuation, Search & Rescue, Shelter Construction, First Aid, Public Education Length depends on prior experience and knowledge of participants
GTZ, IIRR		General concept of DRM	Raise awareness among decision makers and population Enhance self-help capacities within barangay	Stressing social and economic advantages of prevention and mitigation
GTZ, IIRR, CARE, Oxfam, REIS, ADPC		Vulnerability and capacity analysis (including participatory risk identification and mapping)	Conduct detailed hazard analysis for barangays Gather detailed knowledge about vulnerability	Includes identification of hazard prone areas, manpower and capacities, livelihood, transportation Inventory of medicine stock, evacuation centres / routes, rescue & shelter materials
DILG, GTZ	Capacity development	Identification of responsibilities and communication lines	Help in the reorganisation of BDCC	Organisation of residents into special groups for self-help Mutual assistance agreements with other barangays Leadership succession Quick damage report Conduct short trainings for residents
GTZ		Drafting of preparedness plan	Support the drafting of a disaster preparedness plan	Will include: vulnerability analysis, hazard profile, responsibilities and communication lines, EWS guidelines, multi-hazard evacuation and contingency plan
OCD, GTZ		Rehearsals/drills	Conduct drills to test if plans are operational	

Type: ADRMM for *barangay* level – *Barangay* Council; BDCC / *Barangay* Action Team & general assembly		
Facilitation by: MDCC/MAT, GTZ		
Overall objectives: Mid-term development plan integrating DRM and developed in a participatory manner to assure ownership		
Components/Content of workshop	Objectives	Remarks
Concept of DRM with special focus on prevention and mitigation	Awareness raising with decision makers and population	Stressing social and economic advantages of prevention and mitigation
Concept of development planning	Barangay level understands importance of bottom-up planning and knows necessary tools and procedures	Differentiate between mid-term plan and AIP Significance of bottom-up planning
Revisiting vulnerabilities and capacities	Common understanding of hazards, capacities and challenges	Includes identification of hazard prone areas, manpower and capacities, livelihood, transportation (Will be presented by barangay representative)
Identification of development problems and common vision	Identification of main areas for intervention	Participatory process
Integration of DRM into development plans	Sensitization of barangay on interrelation of DRM and development	Examples how development projects can help to prevent and mitigate disasters (lecture & brainstorming)
Participatory Development Planning	Mid-term barangay development plan according to needs of local population and integrating DRM	Process: • Planning in small sectoral groups. Each develops a vision how their sector and disasters affect each other (facilitated by MDCC/MAT-member from respective municipal department) • Presentation of results to other groups • Identification of synergies and contradictions • Identification of activities that do not need external support • Prioritizing specific projects. Discussing resources and time needed for implementation
Further steps	Assigning responsibilties for implementation Consolidating plan	Endorsement of plan by executive board Submitting plan to MPDO
Proposal writing	Support barangay to acquire additional funds Support barangays to request technical training on specific issues	Identifying potential support programs Identifying potential training institutions and departments Formulating requests for training and funding

Type: ADRMM+ for municipal level – MDCC / MAT (target group 1) – and for provincial level – PPDO, PDMU, DILG (target group 2)		
Facilitation for target group 1 by: GTZ in the short-term (fading out); PDMU, PPDO, DILG in the long term Facilitation for target group 2 by: NEDA		
Overall objectives on municipal level: MDCC/MAT is capacitated to facilitate planning workshops on municipal and barangay level including DRM as a cross-cutting issue and bottom-up planning Overall objectives on provincial level: PPDO, PDMU and DILG are capacitated to facilitate training of trainers workshops on provincial and municipal level including DRM as a cross-cutting issue and bottom-up planning		
Components/Content of workshop	Objectives	Remarks
Concept of DRM with special focus on prevention and mitigation	Awareness raising among decision makers	Stressing social and economic advantages of prevention and mitigation
Concept of development planning	Common understanding of planning	Differentiate between land use plan, mid-term plan and AIP Significance of bottom-up planning
Revisiting vulnerabilities and capacities	Common understanding of hazards, capacities and challenges	Includes identification of hazard prone areas, manpower and capacities, livelihood, transportation
Identification of development problems	Identification of main areas for intervention	Participatory process
Integration of DRM into development plans	Sensitization on interrelation of DRM and development	Examples how development projects can help to prevent and mitigate disasters (lecture & brainstorming)
Tools for integrating DRM into planning	Training recipients know a number of tools to assure hazard sensitive development projects	ECC, building codes, zoning ordinances, maps, CBMS or other surveys, etc.
Monitoring	Training recipients are capacitated to monitor the submitted development plans	Focus on bottom-up planning and DRM integration, ECC
Proposal writing	Training recipients know different potential sources of funding for DRM measures	Identifying potential support programs Identifying potential training institutions and departments Formulating requests for training and funding
Further steps	Timetable for interventions on provincial municipal and barangay level GTZ has a way of monitoring the progress of capacity development	MDCC/MAT members know how and when to conduct participatory planning workshops on *barangay* level and how and when to feed back their knowledge into municipal planning Provincial participants: same as above, but in relation to municipal and provincial level

List of SLE publications since 1972

Erik Engel, Nicole Piepenbrink, Jascha Scheele, Conrad Dorer, Jeremy Ferguson, Wera Leujak: **Being Prepared: Disaster Risk Management in the Eastern Visayas, Philippines,** Berlin 2007	S231
Carola Jacobi-Sambou, Ruth Becker, Till Bellow, Sascha Reebs**,** Levke Sörensen, Simon Stumpf : **Armutsmindernde Wirkungen ausgewählter Vorhaben des deutschen EZ-Portfolios in Burkina Faso.** Berlin, 2007	S230
Heiko Harms, Diana Cáceres, Edgar Cossa, Julião Gueze, Moritz Ordemann, Alexander Schrade, Ute Straub, Sina Uti: **Desenvolvimento Económico Local em Moçambique: m-DEL para a Planificação Distrital - um método para identificar potencialidades económicas e estratégias para a sua promoção (Vol. 1); ,** Berlin 2007	S229 Vol. I
Heiko Harms, Diana Cáceres, Edgar Cossa, Julião Gueze, Moritz Ordemann, Alexander Schrade, Ute Straub, Sina Uti: **Guião para aplicação do m-DEL - uma ferramenta para as Equipas Técnicas Distritais (Vol. 2),** Berlin 2007	S229 Vol. II
Thomas König, Jantje Blatt; Kristian Brakel,; Kristina Kloss,; Thorsten Nilges,; Franziska Woellert: **Market-driven development and poverty reduction: A value chain analysis of fresh vegetables in Kenya an Tanzania.** Berlin 2007	S228
Seminar für Ländliche Entwicklung (Hrsg.), **Entwicklungspolitische Diskussions-tage 2007. Dokumentation zur Veranstaltung vom 24.-77. April 2007 in Berlin.** Berlin, 2007	S227
Christian Berg, Karin Fiege, Beate Holthusen, Gesa Grundmann, Iris Paulus, Shirley Wouters, Gabriele Zdunnek,: **Teamleitung: Erfahrungen mit Aktions- und Entscheidungsorientierten Untersuchungen.** Berlin, 2007	S226
Karin Fiege, Saskia Berling, Ivo Cumbana, Magdalena Kilwing, Gregor Maaß, Leslie Quitzow, **Contribuição da Construção de Estradas Rurais na Redução da Pobreza? Análise de Impacto na Provincia de Sofala, Moçambique.** Berlin, 2006	S225
Erik Engel, Henrica von der Behrens, Dorian Frieden, Karen Möhring, Constanze Schaaff, Philipp Tepper, **Strategic Options towards Sustainable Development in Mountainous Regions. A Case Study on Zemo Svaneti, Georgia.** Berlin, 2006	S224
Christian Berg, Susanne Bercher-Hiss, Martina Fell, Alexander Hobinka, Ulrike Müller, Siddharth Prakash, **Poverty Orientation of Value Chains for Domestic and Export Markets in Ghana.** Berlin, 2006	S223
Stephan Amend, Jaime Cossa, Susanne Gotthardt, Olivier Hack, Britta Heine, Alexandra Kurth, **Katastrophenrisikoreduzierung als Prinzip der Ländlichen Entwicklung - Ein Konzept für die Deutsche Welthungerhilfe. (Nicaragua).** Berlin, 2006	S222
Karin Fiege, Saskia Berling, Ivo Cumbana, Magdalena Kilwing, Gregor Maaß, Leslie Quitzow, **Armutsminderung durch ländlichen Straßenbau? Eine Wirkungsanalyse in der Provinz Sofala, Mosambik.** Berlin, 2006	S221
Seminar für Ländliche Entwicklung (Hrsg.), **Entwicklungspolitische Diskussions-tage 2006. Dokumentation zur Veranstaltung vom 3.-6. April 2006 in Berlin.** Berlin, 2006 (nur als CD erhältlich)	S220
Ivonne Antezana, André Fabian, Simon Freund, Eileen Gehrke, Gisela Glimmann, Simone Seher, **Poverty in Potato Producing Communities in the Central Highlands of Peru.** Berlin, 2005	S219

Melanie Djédjé, Jessica Frühwald, Silvia Martin Han, Christine Werthmann, Elena Zanardi, **Situation de référence pour le suivi axé sur les résultats – Étude réalisée pour le Programme de Lutte Contre la Pauvreté (LUCOP) de la Coopération Nigéro-Allemande.** Berlin, 2005 S218

Gesa Grundmann, Nathalie Demel, Eva Prediger, Harald Sterly, Azani Tschabo, Luzie Verbeek, **Wirkungen im Fokus - Konzeptionelle und methodische Ansätze zur Wirkungsorientierung der Arbeit des Deutschen Entwicklungsdienst im Kontext von Armutsminderung und Konflikttransformation**. Berlin, 2005 S217

Lioba Weingärtner, Markus Fiebiger, Kristin Höltge, Anke Schulmeister, Martin Strele, Jacqueline Were**, Poverty and Food Security Monitoring in Cambodia - Linking Programmes and Poor People's Interests to Policies**. Berlin, 2005 S216

Seminar für Ländliche Entwicklung (Hrsg.), **Entwicklungspolitische Diskussionstage 2005. Dokumentation zur Veranstaltung vom 14.-17. März 2005 in Berlin.** Berlin, 2005 (nur als CD erhältlich) S215

Karin Fiege, **Gesa Grundmann**, **Michael Hagedorn**, Monika Bayr, Dorothee Heidhues, Florian Landorff, Waltraud Novak, Michael Scholze, **Zusammen bewerten - gemeinsam verändern. Instrumentarium zur Selbstevaluierung von Projekten in der Internationalen Zusammenarbeit (SEPIZ).** Berlin, 2004 S214

Pascal Lopez, Ulrike Bergmann, Philippe Dresrüsse, Michael Hoppe, Alexander Fröde, Sandra Rotzinger, **VIH/SIDA: Un nouveau défi pour la gestion des aires protégées à Madagascar - l'intégration des mesures contre le VIH/SIDA dans le travail du Parc National Ankarafantsika.** Berlin, 2004 S213

Birgit Kundermann, Mamadou Diarrassouba, Diego Garrido, Dorothe Nett, Sabine Triemer de Cruzate, Andrea Ulbrich, **Orientation vers les effets et contribution à la lutte contre la pauvreté du Programme d'Appui aux Collectivités Territoriales (PACT) au Mali.** Berlin, 2004 S212

Christian Berg, Mirco Gaul, Romy Lehns, Astrid Meyer, Franziska Mohaupt, Miriam Schröder, **Self-Assessing Good Practices and Scaling-up Strategies in Sustainable Agriculture – Guidelines for Facilitators.** Berlin, 2004 S211

Seminar für Ländliche Entwicklung (Hrsg.), **Entwicklungspolitische Diskussionstage. Dokumentation zur Veranstaltung vom 29. März bis 1. April 2004 in Berlin.** Berlin, 2004 S210

Iris Paulus, Albert Ewodo Ekani, Jenni Heise, Véronique Hirner, Beate Kiefer, Claude Metou'ou, Ibrahim Peghouma, Sabine Schliephake, **Réorientation des prestations de services en milieu rural – recommandations pour le choix et le suivi des organismes d'appui. Etude pilote au Cameroun.** Berlin, 2003 S209

Gabriele Zdunnek, Christian Cray, Britta Lambertz, Nathalie Licht, Eva Rux, **Reduction of Youth Poverty in Cape Town, South Africa**. Berlin, 2003 S208

Beate Holthusen, Clemens Koblbauer, Iris Onipede, Georg Schwanz, Julia Weinand, **Mainstreaming Measures against HIV/AIDS. Implementing a new Strategy within the Provincial Government of Mpumalanga / RSA.** Berlin, 2003 S207

Shirley Wouters, Thekla Hohmann, Kirsten Lautenschläger, Matthias Lichtenberger, Daniela Schwarz, **Development of a Peace and Conflict Impact Assessment for Communities in the South Caucasus.** Berlin, 2003 S206

Christian Berg, Saskia Haardt, Kathleen Thieme, Ralf Willinger, Jörg Yoder, **Between Yaks and Yurts. Perspectives for a Sustainable Regional Economic Development in Mongolia.** Berlin, 2003 S205

Seminar für Ländliche Entwicklung (Hrsg.), **Entwicklungspolitische Diskussionstage. Dokumentation zur Veranstaltung vom 7.-11. April 2003 in Berlin.** Berlin, 2003 S202

Karin Fiege, Corinna Bothe, Frank Breitenbach, Gerhard Kienast, Sonja Meister, Elgin Steup, António Reina, Ute Zurmühl, **Tourism and Coastal Zone Management. Steps towards Poverty Reduction, Conflict Transformation and Environmental Protection in Inhambane/Mozambique.** Berlin, 2002 S201

Karin Fiege, Corinna Bothe, Frank Breitenbach, Gerhard Kienast, Sonja Meister, Elgin Steup, António Reina, Ute Zurmühl, **Turismo e Gestão de Zonas Costeiras. Contribuições para Redução da Pobreza, Transformação de Conflitos e Protecção do Meio Ambiente em Inhambane /Moçambique.** Berlin, 2002 S200

Thomas Hartmanshenn, Komi Egle, Marc-Arthur Georges, Katrin Kessels, Anne Nathalie Manga, Andrea von Rauch, Juliane Wiesenhütter, **Integration of Food and Nutrition Security in Poverty Reduction Strategy Papers (PRSPs). A Case Study of Ethiopia, Mozambique, Rwanda and Uganda.** Berlin, 2002 S199*

Beate Holthusen, Nike Durczak, Claudia Gottmann, Britta Krüger, Ulrich Häussermann, Bela Pyrkosch, **Managing Conflict - Building Peace. Strengthening Capacities of InWEnt Scholars - A Pilot Study in the Philippines.** Berlin, 2002 S198

Oliver Wils, Erik Engel, Caroline von Gayl, Marion Immel, Dirk Reber, Debabrata Satapathy, **Exploring New Directions in Social Marketing. An Assessment of Training Health Providers in Rajasthan/India.** Berlin, 2002 S197

Seminar für Ländliche Entwicklung (Hrsg.), **Entwicklungspolitische Diskussionstage. Dokumentation zur Veranstaltung vom 16.-19. April 2002 in Berlin.** Berlin, 2002 S196

Benedikt Korf, Tobias Flämig, Christine Schenk, Monika Ziebell, Julia Ziegler, **Conflict - Threat or Opportunity? Land Use and Coping Strategies of War-Affected Communities in Trincomalee, Sri Lanka.** Berlin, 2001 S195

Inge Remmert Fontes, Ulrich Alff (Editor), Regine Kopplow, Marion Miketta, Helge Rieper, Annette Wulf, **Review of the GTZ Reintegration Programme in War-Affected Rural Communities in Sierra Leone.** Berlin, 2001 S194

Andreas Groetschel, Reynaldo R. Aquino, Inga Buchholz, Anja Ibkendanz, Tellita G. Mazo, Novie A. Sales, Jan Seven, Kareen C. Vicentuan, **Natural Resource Management Strategies on Leyte Island, Philippines.** Berlin, 2001 S193

Harald Braun, Peter Till Baumann, Natascha Vogt, Doris Weidemann, **HIV/AIDS Prevention in the Agricultural Sector in Malawi. A Study on Awareness Activities and Theatre.** Berlin, 2001 S192

Ivonne Antezana, Arne Cierjacks, Miriam Hein, Gerardo Jiménez, Alexandra Rüth, **Diseño y Verificación de un Marco Metodológico para la Evaluación de Proyectos del Programa de Voluntarios de las Naciones Unidas - Evaluación del Proyecto Randi-Randi en Ecuador.** Berlin, 2001 S191

Arne Cierjacks, **Tobias Flämig**, **Miriam Hein**, **Alexandra Rüth**, **Annette Wulf (Hrsg.)**, **Entwicklungspolitische Diskussionstage 2001.** Berlin, 2001 S190

Gabriele Struck, **Fernando Silveira Franco**, Natalie Bartelt, Bianca Bövers, Tarik Marc Kubach, Arno Mattes, Magnus Schmid, Silke Schwedes, Christian Smida, **Monitoramento Qualitativo de Impacto - Desenvolvimento de Indicadores para a Extensão Rural no Nordeste do Brasil.** Berlin, 2000 S189

Ekkehard Kürschner, Irene Arnold, Heino Güllemann, Gesa Kupfer, Oliver Wils, **Incorporating HIV/AIDS Concerns into Participatory Rural Extension. A Multi-Sectoral Approach for Southern Province, Zambia.** Berlin, 2000 S188

Andreas Groetschel, Ingrid Müller-Neuhof, Ines Rathmann, Hermann Rupp, Ximena Santillana, Anja Söger, Jutta Werner, **Watershed Development in Gujarat - A Problem-Oriented Survey for the Indo-German Watershed Development Programme (India).** Berlin, 2000 S187

Ulrich Kipper, Enkhtseteg Bat-ochir, Wolfgang Hesse, Britta Jell, Ulf Maaßen, Gaby Müller, **Development of a Concept for Collaborative Management of Khar Us Nuur National Park, Mongolia.** Berlin, 1999 S186

Dominikus Collenberg, Sandra Dierig, Nikola Küsters, Claudia Roos-Mensah, Eric Vaccaro, Anke Weissenborn, **Service Provision for Smallholder Commercial Farmers in Zimbabwe - Analysis of an Agricultural Service System and Participatory Organisational Analysis of the Farmers Development Trust.** Berlin, 1999 S185

Edwin Wennink, Ulrike Bickel, Reinhild Bode, Wolfgang Demenus, Ute Pauer, Norbert Rösch, **Cofinanciamiento en Sistemas de Riego Autogestionados - Análisis de la Capacidad y Voluntad de Pago de los Regantes en el Sistema 'Avisado' (Alto Mayo, Perú).** Berlin, 1999 S184

Eberhard Bauer, Christine Bigdon, Antonia Engel, Benedikt Korf, Giang Nam Ha, Kerstin Schäfer, Esra Terzioglu, **Food Security and Conflict - A Participatory Development Concept for the Integrated Food Security Programme, Trincomalee, Sri Lanka.** Berlin, 1999 S183

Ulrich Alff, Anka Derichs, Ezekiel O. Kute, Claudia Mayer, Halka Otto, **Decentralised and Participatory Development Planning in Nkomazi-Region and Willowvale-Area, South Africa.** Berlin, 1998 S182

Jochen Currle, Bernardine Dixon Carlos, Maike Potthast, Rita Reinhardt, Stefan Schukat, Anna Steinschen, **Posibilidades de protección sostenible de áreas protegidas con la participación de etnias indígenas - un estudio de caso de la Reserva de Biosfera BOSAWAS, Nicaragua.** Berlin, 1998 S181

Christian Berg, Kirsten Bredenbeck, Anke Schürmann, Julia Stanzick, Christiane Vaneker, **NGO-Based Participatory Impact Monitoring of an Integrated Rural Development Project in Holalkere Taluk, Karnataka State, India.** Berlin, 1998 S180

Lothar Kinzelmann, Jochen Dürr, Dirk Heinrichs, Ruth Irlen, Jan Wendt, **Potentials for Self-Directed Rural Development - Community-Based Organizations and their Networks in Thailand.** Berlin, 1998 S179

Frank Rietz, **Bedeutung ländlicher Innovationssysteme in der Konzeption von GTZ-Projekten.** Berlin, 1997 S178*

Andreas Groetschel, Uta Feiler, Ingrid Jacobsen, Petra Ruth, Jens Schröder, **From Relief to Rehabilitation: Towards Food Security in Northern Tajikistan.** Berlin, 1997 S177

Christian Berg, Christiane Beck, Gabriele Beckmann, Cecilia Chimbala, Chala Erko Arganea, Anja-Katrin Fleig, Matthias Kuhlmann, Heike Pander, **Introduction of a Participatory and Integrated Development Process (PIDEP) in Kalomo District, Zambia, Volume I: Main Report.** Berlin, 1997 S176Vol. I

Christian Berg, Christiane Beck, Gabriele Beckmann, Cecilia Chimbala, Chala Erko Arganea, Anja-Katrin Fleig, Matthias Kuhlmann, Heike Pander, **Introduction of a Participatory and Integrated Development Process (PIDEP) in Kalomo District, Zambia, Volume II: Manual for Trainers and Users of PIDEP.** Berlin, 1997 S176Vol.II

Ingrid Spiller, Stephan Bock, Annette Kübler, Anja Kühn, Liselotte Lenz, Marc Sporleder, **L'intégration des approches participative et gender dans un projet du développement rural régional - le cas de l'ODAI, Madagascar.** Berlin, 1997 S175

Christine Martins, Monika Fischer, Eva García-Castañer, Maren Lieberum, Frank Löwen, Bernd Seiffert, **Indonesian Agricultural Extension Planning at a Crossroads (Indonesia).** Berlin, 1997 S174

Eberhard Bauer, Boris Balkarov, Dominikus Collenberg, Renate Kirsch, Kirsten Probst, Sepp Steinbrecher, Ulrike Süsser, Steffen Weidner, **Qualitative Impact Monitoring of Agricultural Structural Adjustment in Jordan. An Approach based on Rapid Rural Appraisal.** Berlin, 1996 S173*

Iris Paulus, Léonie Bonnéhin, Elise Amelan Yao, Marcelle Goli, Claus Kogelheide, Elke Proell, Birgit Schäfer, Christine Schäfer, Gerald Schmitt, Monika Soddemann, Adèle Tozegba, Susanne Willner, **La gestion des ressources naturelles dans la périphérie du Parc National de Taï, Côte d'Ivoire. Possibilités d'appui au développement des capacités locales.** Berlin, 1996 S172

Peter Neunhäuser, Barbara Abbentheren, Christian Berg, Djekshen Djamgyrchiev, Samira Kalmakova, Maria Lützenkirchen, Sven von der Ohe, Jeannette Weller, **Möglichkeiten partizipativer Landnutzungsplanung - untersucht im Rahmen des geplanten Biosphärenreservats 'Tengir Too'/ Kirgistan.** Berlin, 1996 S171

Karin Fiege, Gunter Englisch, Regina Frey, Hans-Jörg Kräuter, Anna Kreuzer, Andrea Kutter, Ulrike Weinspach, Axel Weiser, **L'autopromotion paysanne dans la gestion des ressources naturelles dans la zone Mali-Sud. Possibilités d'appui institutionnel dans les Cercles de Tominian et de Bla.** Berlin, 1995 S170

Gesa Grundmann, Miguel Expósito, Ilse Fürnkranz, Carola Kiesel, Claudia Lange, Sabine Lutz, Andreas Weitzel, **De peones a propietarios - Hacia un mejor aprovechamiento de los recursos y potenciales por grupos campesinos en Guamote, Provincia de Chimborazo, Ecuador.** Berlin, 1995 S169

Walter Engelberg, Kulan Amin, Frank Böning, Anselm Duchrow, Anja Gomm, Georg Heidenreich, Markus Radday, Astrid Walker, **Promoting Self-help Activities of Albanian Farmers - Situation Analysis and Assessment of Potentials.** Berlin, 1995 S168

Iris Paulus, Marleine Boueiz, Manfred Fischer, Barbara Kuhn, Jan Papendieck, Silke Stöber, Heike Stumpf, Gerd Ullmann, **Le fonctionnement du marché ovin au Maroc - Approche méthodologique et résultats de l'étude pilote au Moyen Atlas**. Berlin, 1994 S166*

Juan Ceballos-Müller, Norbert Eulering, Heidrun Gilde, Ricarda Gregori, Bernhard Leemhuis, Ulrich Storck, Rita Weidinger, **Sostenibilidad Institucional en el Desarrollo Rural Regional: "Reduciendo la Brecha entre Organizaciones y el Grupo Meta". Elaboración de Propuestas para COHASA II, Proyecto Integrado de Seguridad Alimentaria en Lempira, Honduras.** Berlin, 1994 S165*

Bernd Schubert, Abenaa Addai, Stefan Kachelriess, Josef Kienzle, Martin Kitz, Elisabeth Mausolf, Hanna Schädlich, **Facilitating the Introduction of a Participatory and Integrated Development Approach (PIDA) in Kilifi District, Kenya. Volume I: Recommendations for the Institutionalisation of PIDA Based on Four Pilot Projects.** Berlin, 1994 S164 Vol. I

Bernd Schubert, Abenaa Addai, Stefan Kachelriess, Josef Kienzle, Martin Kitz, Elisabeth Mausolf, Hanna Schädlich, **Facilitating the Introduction of a Participatory and Integrated Development Approach (PIDA) in Kilifi District, Kenya. Volume II: From Concept to Action. A Manual for Trainers and Users of PIDA.** Berlin, 1994 S164 Vol.II

Günther Feiler, Markus Ascher, Susanne Dollmann, Richard Haep, Petra Jacobi, Christiane Jansen, Iris Paulus, Petra Schnadt, **Crop-Livestock Integration in Uva Province, Sri Lanka - Present Role and Potential.** Berlin, 1993 S162

Ute Westphal, Uwe Bergmeier, Gottfried von Gemmingen-G., Martina Hanke, Angela Hinrichs, Beate Holthusen, Monika Schneider, Veronika Schwanz, **Participatory Methods for Situation Analysis and Planning of Project Activities - Experiences with Women and Youth in the Communal Areas of Namibia.** Berlin, 1993 S161*

Ramesh Chandra Agrawal, Anette Emrich, Ulrich Fechter-Escamilla, Christoph Goormann, Norbert Kleineidam, Jutta Will, **Economic Analysis for Project Sustainability. Study of Selected Drinking Water and Soil and Water Conservation Projects in the Integrated Food Security Programme Shandong, People's Republic of China.** Berlin, 1993 S160

Beate Lohnert, Martin Armbruster, Elisabeth Fetsch, Claudia Freudigmann, Hansjörg Lanz, Fritz Rosskopf, Rainer Johannes Schierhorst, **Les Interventions Céréalières comme Partie Intégrante de la Sécurisation Alimentaire dans des Régions Déficitaires - Exemple du Cercle de Bandiagara/Mali.** Berlin, 1992 S151*

Barbara Massler, Heiko Bammann, Franz Haller, Friederike Hansmann, Matthias Hitzel, Andreas Hoffmann, Heiko Luetjen, Sabine Speiser, **El Fomento de Cultivos No-Tradicionales de Exportación: ?Una Estrategia Viable para Baja Verapaz? (Guatemala).** Berlin, 1992 S150*

Uwe Jens Nagel, Stephan Baas, Patrick Chiyanika, Silke Eckert, Jörg Edsen, Martin Geiger, Reiner Laue, Gertrud Lübke, Holger Marbach, **Developing a Participatory Extension Approach - A Design for Siavonga District, Zambia.** Berlin, 1992 S149*

Dagmar Kunze, Mathilde von Bergen, Lena Blaudez, Martina Haslwimmer, Juliana Hinterberger, Stefanie Schaefer, Cordula Schmüdderich, **Différenciation de la population-cible du Projet Kabare à la base d'une analyse socio-économique dans la région du Kivu, Zaire.** Berlin, 1990 S140

Bernhard Hoeper, Wilfried Gebhardt, Thomas Koenig, Ellen Kramer, Bettina Luise Ruerup, Susanne Thieke, **Crop Diversification and Food Security on Household Level with Special Reference to the Cultivation of Vegetables and Fruit Trees - The Case of Ufipa Plateau, Rukwa, Tanzania.** Berlin, 1991 S139

Peter Neunhäuser, Ursula Danzer, Hubert Deubler, Andreas Groetschel, Gesa Grundmann, Ricky Alisky Martin, Frank Axel Mayer, Petrus Saigol, Abdul Salam Akup, Beate Scherf, Susanne Schmall, Jeflus Sinajin, **Appropriate Land Use Systems for Shifting Cultivators - Technical and Institutional Proposals for a Rural Community Development Programme Based on a Participatory Approach in Kota Marudu District/Sabah (Malaysia).** Berlin, 1991 S138

Shifting Cultivation - an Evil Thing? How to Plan a Project for Improving Development Chances of Shifting Cultivators in Sabah/Malaysia. (A Manual for the Video). Berlin, 1991 (Supplement to the SLE study S138)

Gabriele Bargel, Inge Grimm, Jörg Haas, Iris Harder, Manfred Noll, Rainer Schwarzmeier, Georg Strunden, **Desertifikationsbekämpfung und soziale Organisation - Möglichkeiten und Grenzen der Implementierung technischer Maßnahmen zum Erosionsschutz im Niger.** Berlin, 1990 S133*

Dietrich Busacker, Volker Bode, Sabine Dorlöchter, Angelika Fleddermann, René Förster, Doris Popp, Birgit Schmook, Khaly Sylla, Horst Wattenbach, **L'analyse socio-économique des systèmes d'exploitation agricole et de la gestion de terroir dans le Bas-Saloum, Sénégal.** Berlin, 1990 S132*

Theo Rauch, Lorenz Bachmann, Sibylle Braune, Bastian Ehrhardt, Gertraud Faltermeier, Rolf Speit, Manfred Störmer, **Small-Scale Processing at Rural Centres in Malawi - Possibilities of Development and Promotion.** Berlin, 1990 S131

Thomas Krimmel, Thomas Duve, Gerd Fleischer, Gazali Ismal, Maimunah Madjid, Hans-Peter Piepho, Anke Schnoor, Mathias Sommer, Sondra Wentzel, **Towards an Institutionalization of Monitoring and Evaluation of Project Impact - The Example of Projects in the Small-Scale Irrigation Sector in West Sumatra, Indonesia.** Berlin, 1990 S130

Hartmut Müller, **Rubén Vinueza**, Ivonne Antezana, Andrea Brechelt, Juan Ceballos-Müller, Ruth Kleefisch, Andreas Kress, Maria Stuckenberg, **El Sistema de Comercialización de Ganado Bovino en tres Cantones del Ecuador: Análisis y Recomendaciones.** Berlin, 1989 S125

Ulrike Breitschuh, Gabriele Bargel, Ingeborg Grimm, Jörg Haas, Iris Harder, Manfred Noll, Rainer Schwarzmeier, Georg Strunden, **Situation socio-économique et agro-écologique: Etudes de cas dans six villages au Département Tillabéri - Niger.** Berlin, 1989 S124*

Uwe Jens Nagel, Karen Ehlers, Ralf Engelhardt, Burkhard Gnass, Christine Martins, Bernd Schwenk, Ronald Siegmund, Gerold Wyrwal, **Focussing Formal Surveys - The Use of Rapid Rural Appraisal for Designing a Survey in Nam Lang (Thailand).** Berlin, 1989 S123*

Frigga Wirth, Hildegard Brosi, Günther Feiler-Jessensky, Peter Glasauer, Gudrun Krause, Andreas Kunert, Marina Mdaihli, **A Baseline Survey for the Identification of Farming Systems in Zanzibar.** Berlin, 1988 S117

Theo Rauch, Karin Janz, Anne Lengemann, Siegfried Mayer, Susanne Michalik, Michael Siebert, Dietrich Suhlrie, **The Sustainability of the Impact of the Integrated Rural Development Programme (IRDP) Zambia/NW-Province.** Berlin, 1988 S116

Heinz-Wilhelm Strubenhoff, Michael Abel, Ursula Fitzau, Angelika Kemmler, Heidi Mann, Monika Reule, Christel Weller, **Etude socio-économique sur l'élevage traditionnel au Togo**. Berlin, 1988 S115

Reinhard Woytek, Anette Bähring, Dorothee Dersch, Jutta Habermehl, Peter Kaufmann, Trudy Könemund, Maria Weitz, **Soil Erosion Control and Agroforestry in the West Usambara Mountains - Evaluation of an Extension Approach, Tanzania.** Berlin, 1988 S111*

Ramesh Chandra Agrawal, Vera Boerger, Felix Feneberg, Tomas Heintz, Georg Janze, Heike Martin, Pejman Mohseni, **Impact of Cattle Distribution from Governmental Livestock Farms on Smallholders in Sri Lanka.** Berlin, 1988 S110

Ute Westphal, Martina Clemens, Karin Gaesing, Uwe Grossmann, Dagmar Kunze, Beate Weiskopf, **Baseline Survey on Smallholders in Nimba County, Liberia - To Facilitate Decision Taking in Project Planning.** Berlin, 1988 S109

César Maldonado, Richard Bitsch, Ulrich Doms, Herwig Hahn, Gustavo Mejía Yepes, Sabine Preuß, Michael Schucht, **Sistemas de Producción Agropecuaria en dos Zonas del Sur del Ecuador.** Berlin, 1987 S103

Geert Balzer, Norbert Deipenbrock, Regina Ecker, Martin Eisenbeis, Ulfert Focken, Klaus Gihr. Brigitte Reichelt, Peter Saile, **Shifting Cultivation in West Pasaman, Sumatra (Indonesia).** Berlin, 1987 S102

Bernd Schubert, Christoph Backhaus, Jochen Humann, Lothar Kleipaß, Klaus Michel, Anne Seyfferth, Petra Windisch, Klaus Zoumer, **Proposals for Farming Systems-Oriented Crop Research of Wawi Highland Agricultural Research Station in Northern Thailand.** Berlin, 1986 S101

Peter Neunhäuser, Dorothee Aehling, Rainer Droste, Christian Graefen, Hassan Kaya, Rainer Schmidt, Helga Stamm, Kurt Wagner, **Demand for Major Fruit Tree Seedlings including Coconut by Village Farms and Farmers in the Lowland Areas of Tanga Region (Tanzania).** Berlin, 1986 S96

Anne Valle-Zárate, Georg-Friedrich Heymell, Manfred Jeebe, Klaus Lengefeld, Hergung Sandhagen, Manfred Szyszka, **Condiciones Actuales y Potencial de la Producción Porcina para Mejorar la Situación del Pequeño Productor en la Provincia Gran Chaco - Bolivia.** Berlin, 1986 S95

Frank Bremer, Dietrich Busacker, Alpha Diallo, Hauke Fehlberg, Christine Meyer, Willi Monigatti, Karl-Heinz Spiegel, **Les possibilités de promotion des petites exploitations agricoles dans la Province Atlantique, Bénin.** Berlin, 1986 S94*

Albert Engel, Miguel Calderón-Hagemann, Wolfgang Herbinger, Waltraud Keipp, Jochen Knoth, Gesa Schoop, Henning Weise, **Promoting Smallholder Cropping Systems in Bo-Pujehun/Sierra Leone - An Assessment of Traditional Cropping Development Project.** Berlin, 1985 S86

Ramesh Chandra Agrawal, Elisabeth Brandt-Gerbeth, Irmgard Hettich, Joachim Jeltsch, Thomas Karasch, Elisabeth Mildeberger, Kadir Mwadin, August Visser, **Possibilities of Increasing Rural Incomes in Dhading District, Nepal.** Berlin, 1985 S85

Gerd Ramm, Geert Balzer, Manfred van Eckert, Regina Hugo, Barbara Massler, Rolf Müller, Jürgen Richter, **Integration of Animal Husbandry into Transmigrant Farming Systems in the Middle Mahakam Area, East Kalimantan, Indonesia.** Berlin, 1985 S84

Uwe Jens Nagel, Bernd Bültemeier, Andrew B. Dua, Veronika Gruber, Thomas Krimmel, Uwe Prien, Sigfrid Schröder, Andreas Springer-Heinze, **The Modified Training and Visit System in the Philippines - A Study on the Extension Delivery System in Region III.** Berlin, 1984 IV/43

Khosrow Saidi, Heike Kross, Hans-Martin Lorenzen, Peter Pfaumann, Joachim Schwanck, Susanne Welz, Jutta Werdes, **Baseline Survey of Agriculture and Living Conditions in Semonkong Region/Lesotho.** Berlin, 1984 IV/42

Hessameddin Tabatabai, Karl Friedrich Glombitza, Peter Kowoll, Leon Macioszek, Rupert Othmer, Wilhelm Simons, **Production and Marketing of Milk in the Smallholder Sector of the Western Region/Jamaica.** Berlin, 1984 IV/41

Günter Kleemann, Eberhard Krain, Renate Kuchenreuther, Alfonso Otero Moreno, Heinrich Sauter, Johannes Thaysen, Andrea Warner, **Situación actual y Potencial de la Producción Lechera en Explotaciones de Doble Propósito en el Pie de Monte Llanero (Meta, Colombia).** Berlin, 1983 IV/40

Peter Neunhäuser, Herbert Bayreuther, Albert Engel, Michael Friesenegger, Aziz Magelassa, Antonio Monteiro Neves, Verena Renneke, Walter Salzer, **Appropriate Land Use Systems for Smallholder Farms - A Survey of Ecological and Socio-Economic Conditions in the Machakos District (Kenya).** Berlin, 1983 IV/39*

Peter Schröder, Sylvia Brunold, Günther Mühlbauer, Martin Orth, Angela Petersen, Richard Preißler, Kai Rehfeldt, Andreas Schumacher, **Investigation on Current Yield Potentials on Tax Allotments on the Islands of Ha'apia and Vava'u, Kingdom of Tonga (South Pacific).** Berlin, 1983 IV/38

Jürgen Hopp, **Gerald Rathert**, Regula Egli-Frey, Maria Fiedler, Martin Harder, Stephan Jansen, John Kasonta, Karl-Peter Kirsch, Reiner Radermacher, Melanie Tigges-Ismael, **Base Line Survey in Coconut Growing Areas of Tanzania.** Berlin 1983 IV/36

Bernd Schubert, Herbert Butscher, Christopher Kellner, Oskar Linn, Margot Thomsen, Bernd Wolf, **Vegetables** in **East Kalimantan. Agro-Economic Nutritional and Ecological Aspects of Promoting Vegetable Production and Marketing in Three Districts of East Kalimantan - Indonesia.** Berlin, 1982 — IV/35*

Klaus Baumgarten, Norma Bethke, Jutta Lehmann, Hans-Ludwig Mayer, Joachim Schröder, Roland Weckend, **Present Situation and Development Possibilities for Smallholder Settlements in the Newly Reclaimed Mariut Area in Egypt.** Berlin, 1982 — IV/34

Thomas Teuscher, et.al., **Possibilités d'intensification et d'intégration de l'élevage dans les exploitations agricoles des régions Plateaux et Centrale au Togo.** Berlin, 1980 — IV/31*

Ramesh Chandra Agrawal, Eberhard Bauer, Manfred Beier, Julia Böcker, Gerd Juntermanns, Theda Kirchner, Reinhard Woytek, **A Study of Agriculture Credit for Small Farmers in Uttar Pradesh/India.** Berlin, 1980 — IV/30

Hannelore Börgel, Barbara Arend, Carola Jacobi, Samuel Kanyarukiga, Alois Kullaya, Berga Lemaga, Sulemann Mogaeka, Wolfgang Prante, **Production, Marketing and Consumption of Potatoes in the Ethiopian Highlands (Holetta, Awassa, Alemaya).** Berlin, 1980 — IV/29*

Kurt J. Peters, Georg Deichert, Edeltraud Drewes Günter Fichtner, Sabine Moll, Fernando Chavarria, Bréhima Diakité, **Goat production in low income economic units of selected areas of West-Malaysia.** Berlin, 1979 — IV/27*

Eberhard Grosser, **Aliou Ibra Ba**, Klaus Berger, Curt von Gossler, Matthias Grunewald, Bernd Kadura, Helga Neumann, **Analyse de situation de la région du Tagant (République Islamique de Mauritanie) avec attention particulière aux aspects socio-économiques**. Berlin 1979/80 — IV/26

Detlev Böttcher, Hans Diederichsen, Hans-Joachim Esderts, Monika Herz, Hubert Schillinger, Wolfgang Schipprack, **Etude sur le développement de la demande et de la commercialisation de la production maraîchère au périmètre public irrigué de Bou Heurtma, Jendouba, Tunisie.** Berlin, 1979 — IV/25

Thomas Teuscher, Gerd Addicks, Gerd Bleckmann, Hans-Jürgen Bösel, Michael Holzheimer, Erich Klinger, Josef Niedermayer, **Livestock Development in West Sumatra (Indonesia).** Berlin, 1978 — IV/24

Ramesh Chandra Agrawal, Horst Ammann, Hannelore Gelmroth, S.M. Kaikobad, Eberhard Nau, Ursula Nölle, **A Study of Fertilizer Use in Gandaki Zone of Nepal.** Berlin, 1978 — IV/23

Peter Munzinger, Cornelia Deubler, Ralph Jätzold, Detlev Leitner, Renate Melcher, Ulrich Mey, Gerald Rathert, **The Hindi-Magogoni Settlement Scheme in Lamu District, Coastal Province of Kenya.** Berlin, 1978 — IV/22

Eberhard Grosser, Jochen Pfeiffer, Günter Baumann, Frank Bremer, Alhoussène Condé, Michael Götze, Walter Hauth, Delphine Onwumere, **Etude agro-socio-économique de base sur les conditions de développement de la Sous-Préfecture de Paoua, Ouham-Pende, (Empire Centrafricain).** Tome I, Berlin, 1977 — IV/20*

Eberhard Grosser, **Jochen Pfeiffer**, Günter Baumann, Frank Bremer, Alhoussène Condé, Michael Götze, Walter Hauth, Delphine Onwumere, **Etude agro-socio-économique de base sur** les conditions de **développement de la Sous-Préfecture de Paoua, Ouham-Pende, (Empire Centrafricain).** Tome II (Deutsche Zusammenfassung, Annexes). Berlin, 1977 — IV/20[a]

Thomas Teuscher, Richard Baptist, Dedo Geinitz, Karimul Md. Huq, Rolf Peter Mack, Ernst-Axel Momber, Christiane Rehse, **Further Development of Milk Collecting Centre Jasin, Malaysia, for Smallholder Dairying.** Berlin, 1977 — IV/19

Peter Neunhäuser, Claus Auer, Gerhard Brandt, Gerhard Fischer, Claus Wagner, Anton Wirth, **Possibilities of the Introduction of Draught Animals in the North-West Province of the United Republic of Cameroon.** Berlin, 1977 — IV/18

Hans-Jürgen Daunicht, Annette Bernd, Herbert Jenrich, Rainer Struck, Doris Werner, **Capacidad de uso y de manejo de los suelos del Valle Matehuala-Huizache, San Luis Potosí, México.** Berlin, 1976 — IV/15

Hans-Jürgen Daunicht, Annette Bernd, Herbert Jenrich, Rainer Struck, Doris Werner, **Nutzungskapazität und Bewirtschaftung der Böden des Tales Matehuala-Huizache, San Luis Potosí, México.** Berlin, 1977 (Deutsche Fassung von Nr. IV/15) — IV/16

Bernd Schubert, Wolf Dieter Hartmann, Wolfgang Kunze, Klaus Pilgram, Norbert Walter, Richard Zink, **Study and Experiment on Marketing of Fazal-I-Manani Plums in Peshawar/Pakistan.** Berlin, 1976 — IV/14

Ramesh Chandra Agrawal, Peter Englberger, Peter Munzinger, Norbert Rossler, Ludwig Schatz, **A Study of Hill Agriculture in Almora (India) - Present Status and Future Strategy for Development.** Berlin, 1976 — IV/13

Hans Gsänger, Dorothea Altes, Jürgen Hörner, Friedolf Lau, Günter Raad, Gerhard Vollmer, Karl-Ludwig Zils, **How to Make Co-Operative Marketing Viable - The Case of Sweet Orange Marketing in Thailand.** Berlin, 1975 — IV/11*

Eberhard Grosser, Wolfram Brünger, Christoph Diewald, Niels Hansen, Wulf Killmann, César Maldonado, Maria-Theresia Maldonado, **Problemática y perspectivas de desarrollo en la agricultura migratoria de una subregión de la Selva Lacandona, (Chiapas, México).** Berlin, 1975 — IV/10*

Thomas Teuscher, Elisabeth Hässler, Elmar Locher, Barbara Meyer, Konrad Sandhofer, Reinhold Swoboda, Mona Tammer, **Feasibility Study on the Establishment of Smallholder Dairy Colonies in Connection with Cattle Multiplication Units in West Malaysia.** Berlin, 1975 — IV/9

Ursula Hadelich-Bauhoff, Wolfgang Bayer, Hans-G. Danninger, Ludwig Hoffmanns, Reinhild Schepers, Gerhard Schnepel, **Aspects of Cotton Production in Ulanga District, (Tanzania).** Berlin, 1974 — IV/8*

Peter Neunhäuser, Christian Döbel, Ingrid Foik, Hans Häusler, Norbert Jost, Bernhard Labus, Hans Pfister, **Survey on Smallholder Agriculture in West Sumatra, (Indonesia).** Berlin, 1974 — IV/7*

Ramesh Chandra Agrawal, Gerhard Anger, Franz Brandner, Günter Dresrüsse, Ilse Fritz, Johannes Kotschi, **A Study of the Role of Nationalized Banks in Financing Agriculture in the District of South Kanara, (India).** Berlin, 1974 — IV/6

Hans Gsänger, Michael v. Gemmingen, Bernd Lassen, Bernhard Meier, Manfred Metz, Gloria Petrocivs, Wichard Ziebell, **The Marketing System for Fruit and Vegetables in Ibadan - A Case Study, (Nigeria).** Berlin, 1973 — IV/5*

Herbert Ströbel, Angelika Schneider, Dietrich Stotz, Engelbert Veelbehr, Annemarie Wäschle, Josef Weber, **An Economic Analysis of Smallholder Agriculture in the Kericho District, (Kenya).** Berlin, 1973 — IV/4*

Ramesh Chandra Agrawal, Wilfried Blaschnek, Hellmut Fischer, Andreas Frey, Eberhard Göhsing, Willi Nesselrath, Franz Rauch, **A Study of the Working and Impact of Indo-German Agricultural Project, Kangra. (India).** Berlin, 1973 — IV/3*

Manfred Schulz, Ursula Bauhoff, Henning Bosüner, Heinrich Ehlers, Helmut Heumos, Franz Ring, Peter Schimann, Jean-P. Stauss, **Rapports du stage 1972 à Madagascar - Aspects du développement.** Berlin, 1972 IV/2*

Klemens Hubert, Georg Dürr, Henrik Einfeld, Sigismund Hadelich, Heinz Haug, Irene Haug, Adolf Kraus, Ludwig Löschner, Claus-Rudolf Spranger, **Agricultural Production in Kisii District/Kenya and Proposals for its Development.** Berlin, 1972 IV/1*

* Out of print